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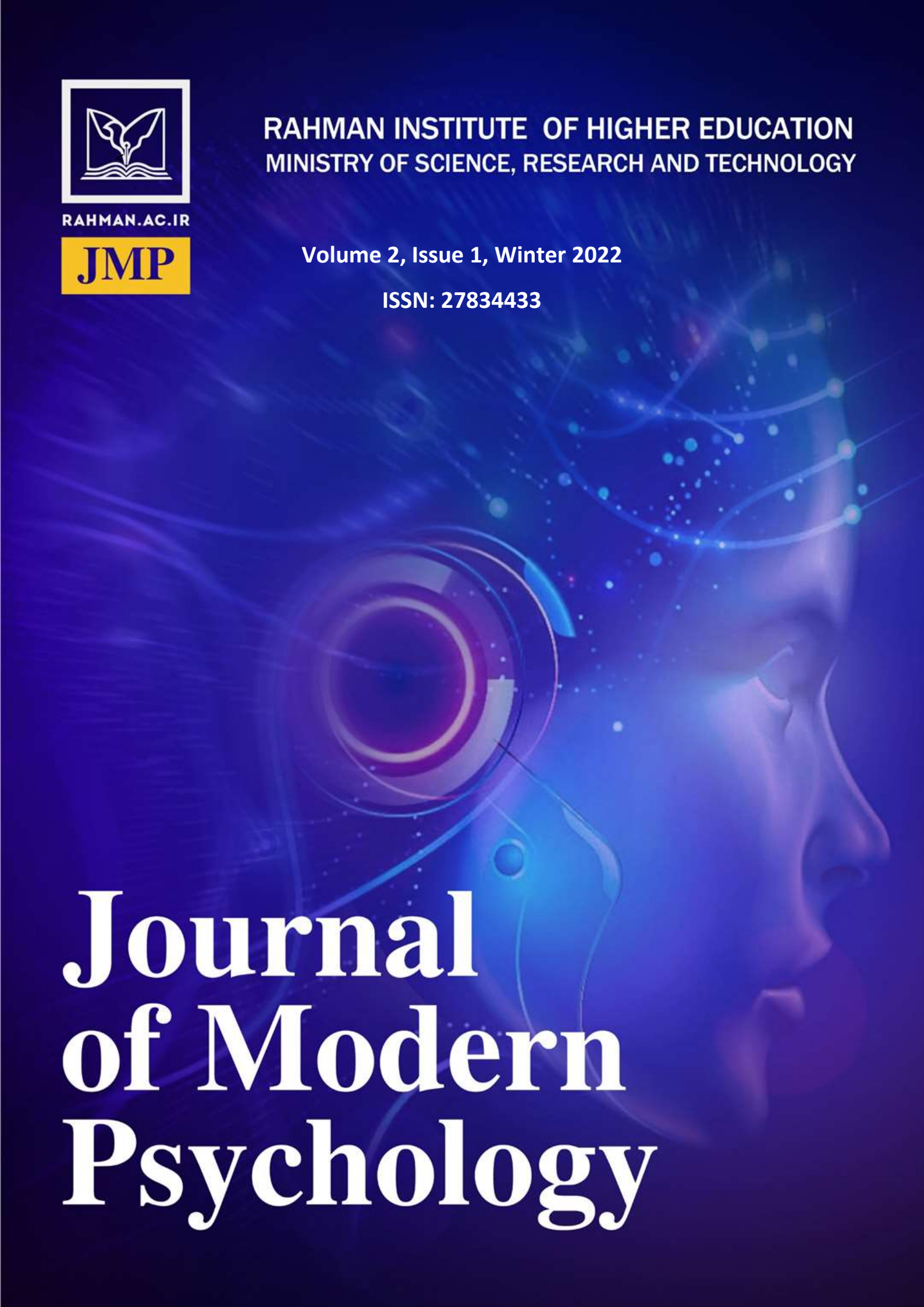

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Research Paper: Relationships between Physical Activity and Balance Performance among Children with Autism Spectrum Disorder

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Abstract

It has been shown that physical activity (PA) is related to motor proficiency in children. Nevertheless, relationships between PA and balance performance among children with autism spectrum disorders (ASD) has been rarely examined. Hence, the aim of this study was to examine the relationships between PA and static and dynamic balance performance among children with ASD. The method used in this study was correlational. Eighty children with ASD (range age between 8 to 14 years old, average 11.51 years old) attended in special schools participated in this study. PA was measured using Physical Activity Questionnaire for Older Children (PAQ-C). Static and dynamic balance tests were used to measure balance performance. Pearson correlation test and regression analysis were used for data analysis. Children with ASD had low amount of PA and balance performance. PA was significantly and directly associated with static and dynamic balance performance. In addition, PA has significantly and directly predicted both static and dynamic balance performance. PA plays a very important role in the motor proficiency in children with ASD. Hence, there is a need for targeted strategies and interventions to increase the level of PA in this population.

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1. Introduction

Autism spectrum disorder (ASD) is considered as a common disability in children. Children with ASD suffers from deficits in peer relationships, social skills, and stereotyped behaviors. ASD is also associated with a high rate of psychiatric problems such as mood and anxiety disorders, and cigarette and substance use disorders (Birchwood et al., 2012; Goulardins et al., 2017). Furthermore, children with ASD suffer from poor motor skills performance (American Psychiatric Association, 2000). Research has shown that children with ASD show poor motor proficiency such as locomotor, object control, and gross motor skills (Aqdassi et al., 2021; Gkotzia et al., 2017; Ketcheson et al., 2018; Lourenco et al., 2020; Mohd Nordin et al., 2021). Evidence suggested that deficiencies in information processing, cognitive motor planning, and timing and sequencing of muscle activity patterns might be underlying mechanisms for poor motor skills performance in children with ASD (Aqdassi et al., 2021; Gkotzia et al., 2017; Ketcheson et al., 2018; Lourenco et al., 2020; Mohd Nordin et al., 2021). However, there might be some factors that can positively affect poor performances of children with ASD in motor skills. One influential factor might be participating in regular physical activity (PA).

PA is defined as any voluntary bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity encompasses all activities, at any intensity, performed during any time of day or night. It includes both exercise and incidental activity integrated into daily routine. Several studies have shown that participating in regular PA have numerous benefits for physical and mental health in all age categories, including children (Caspersen et al., 1985; Thivel et al., 2018; Ghorbani et al., 2021). These benefits included, but not limited to, improvement in brain health, helping in weight management, reduction of the risk of disease, strengthening bones and muscles, improving quality of life, and improving ability to do everyday activities (Abdoshahi et al., 2022; Basterfield et al., 2021; Dana & Christodoulides, 2019; Dana et al., 2021; Hashemi Motlagh et al., 2022; Gholami & Rostami, 2021; Ghorbani et al., 2020, 2021; Lahart et al., 2019; Mohammad Gholinejad et al., 2019; Mohammadi et al., 2022; Naeimikia et al., 2018; Naeimikia & Gholami, 2018, 2020; Schwartz et al., 2019; Tremblay et al., 2011; Wafa et al., 2016; Yaali et al., 2018; Zhang et al., 2021). As such, world health organization (WHO) recommend that children and adolescents aged 7 to 18 engage in at least 60 minutes of moderate-to-vigorous PA (MVPA) across per day (Bull et al., 2020). However, several studies have shown that children with ASD do not meet WHO recommendation of 60 minutes of MVPA per day (Chu et al., 2020; Haegele et al., 2018; Ketcheson et al., 2018; Nguyen et al., 2021; Pan et al., 2016; Stanish et al., 2017). A recent review found that only 42% of the children with ASD aged 6-17 years met the PA guidelines of at least 60 min of daily MVPA (Liang et al. 2020). Rostami Haji Abadi et al., (2021) conducted a meta-analysis and showed that children with ASD engage 30 min lower in daily MVPA than typically developing children. Inactivity among children with ASD is largely because of their personal and physical limitations. In fact, inactivity of individuals with ASD predisposes them for its negative consequences such as enhancing the risk of chronic diseases such as type 2 diabetes,

cancer and cardiovascular disease (Kinne et al., 2004; Rimmer et al., 2007).

In addition, some studies have shown that higher amount of PA will lead to better motor proficiency (e.g., balance performance) in children (Balaban, 2018; Carvalho et al., 2021; Jones et al., 2021; Wrotniakm et al., 2006). However, this issue has not been investigated in children with ASD. Thus, the aim of this study was to examine the associations between PA with balance performance among children with ASD.

2. Methods

2.1 Participants

This study applied a correlational approach. Participations were 80 children with ASD (rage age between 8 to 14 years old, average 11.51 years old) attended in special schools. They have voluntarily participated in this study and their parents gave informed consents. This study was conducted in accordance with ethical guidelines of declaration of Helsinki. All children were already diagnosed as ASD, however, in this study, an experienced psychologist measured the symptoms of ASD in children using the American Psychiatric Association's (2000) *Diagnostic and Statistical Manual of Mental Disorders Text Revision. 4th* ed, too.

2.2 Measures

2.2.1 Physical Activity

We measured PA using Physical Activity Questionnaire for Older Children (PAQ-C). The PAQ-C is a self-administered, 7-day recall instrument. It assesses general levels of PA throughout the elementary school year for students approximately 8 to 14 years of age. The PAQ-C can be administered in a classroom setting and provides a summary physical activity score derived from nine items, each scored on a 5-point scale (Crocker et al., 1997). In this study, we measured its validity with a Cronbach's alpha coefficient of 0.90.

2.2.2 Balance Performance

In this study, both static and dynamic balance performances were assessed. Static balance performance was measured using Warrior III Pose task. Children were asked to balance on the right foot while lifting the left foot off the ground and holding the hands above the head. The purpose of this test was to maintain static balance as much as possible. The time each child was at balance was measured by a digital stopwatch. The stopwatch started in a balanced position and stopped when an error occurred, such as when the left hand or foot hit the ground. In addition, to measure dynamic balance, we asked children to walk on a balancing stick with a length of 4 meters and a width and height of 10 cm. In this way, at the beginning of the movement, the participant was placed at the beginning of the balance stick and started to move with the "go" sign. After walking, he/she put his foot on the ground and came back. The criterion of measurement was the time (in seconds) that a person gains balance on the stick once going back and forth. This test was performed three times and its average was recorded as the final score of the participant for his/her dynamic balance performance.

2.3 Data analysis

Mean and standard deviation were utilized for describing the research variables including PA and both static and dynamic balance. We used Kolmogorov-Smirnov test for measuring the normality of data. Then, we used Pearson correlation test to evaluate the associations between PA and both static and dynamic balance. Finally, regression analysis was applied to investigate whether PA predicts static and dynamic balance performance in children with ASD. SPSS software version 26 was used to analyze the data. P-value was set at $P < 0.05$.

3. Results

3.1 Descriptive Findings

Table 1 shows the mean and standard deviations and relationships between PA and static and dynamic balance performances. In general, the level of PA was low in children with ASD. In addition, children with ASD had low scores in both static and dynamic balance performances. Results of Kolmogorov-Smirnov tests showed that our data were normally distributed (all $P>0.05$).

Table 1

Mean, standard deviation and relation between research variables

Variables	*M*	*SD*	1	2	3
1.Physical Activity	1.47	0.93	-		
2.Static Balance	15.84	10.89	0.58***	-	
3.Dynamic Balance	14.63	5.71	0.49***	0.63***	-

Results demonstrated that PA was significantly related to static balance performance among children with ASD (p=0.000). Moreover, PA was significantly related to dynamic balance performance among children with ASD (p=0.000).

3.2 Prediction of Balance by PA

Table 2 shows the results of regression analysis for prediction of balance performance by PA. Results revealed that PA has directly predicted static balance performance among children with ASD (p=0.000). In addition, PA has directly predicted dynamic balance performance among children with ASD (p=0.000).

Table 2

The results of multiple regression analysis for predicting balance performance by PA

criterion variable	B	SE	Beta	T	Sig	Tolerance	VIF
Static Balance	1.861	0.073	0.582	4.967	0.000		
Dynamic Balance	-0.165	0.051	0.493	3.415	0.000	0.297	3.413
		R=0.508	R^2=0.285	F=8.694	P=≤0.001		
		R=0.465	R^2=0.216	F=6.128	P=≤0.001		

4. Discussion

It is well documented that PA has direct relationship with balance performance in children (Balaban, 2018; Carvalho et al., 2021; Jones et al., 2021; Wrotniakm et al., 2006). Nonetheless, relationships between PA and balance performance among children in special groups such as ASD have been not examined. Therefore, the aim of this study was to examine the relationships between PA and static and dynamic balance performance among children with ASD. First of all, it has been found that our sample showed low level of PA. These results confirm those of previous findings (Chu et al., 2020; Haegele et al., 2018; Ketcheson et al., 2018; Nguyen et al., 2021; Pan et al., 2016; Stanish et al., 2017), indicating that children with ASD engage in less PA than typically developing children. Why children with ASD engage in less PA is not well understood, nevertheless, it may be related to social interaction impairment, motor skill difficulties, and physical barriers in individuals with ASD (Rostami Haji Abadi et al., 2021). In addition, both static and dynamic balance performances were almost weak in our sample, which are consistent with previous findings (Aqdassi et al., 2021; Gkotzia et al., 2017; Ketcheson et al., 2018; Lourenco et al., 2020; Mohd Nordin et al., 2021), indicating low motor proficiency in children with ASD. This low level is quite understandable, because of their difficulties with motor and cognitive functions. Therefore, it is necessary to adopt appropriate strategies to improve the PA and balance performance among this population.

Moreover, it has been found that PA has positive relationships with both static and dynamic balance performance among children with ASD. Furthermore, the results of regression analysis showed that higher amount of PA may predict higher scores of both static and dynamic balances in children with ASD. The present findings are in accordance with previous studies on typically developing children (Balaban, 2018; Carvalho et al., 2021; Jones et al., 2021; Wrotniakm et al., 2006), indicating the positive role played by PA in improving motor proficiency among children with ASD. Therefore, it can be stated that children who engage in more PA have more ideal body compared with those who engage in less PA. Balance performance takes place mostly in lower part of body and it seems that participating in PA leads to strengthening and enduring the muscles, including muscles of lower limbs, in children (Abdoshahi et al., 2022; Basterfield et al., 2021; Dana & Christodoulides, 2019; Dana et al., 2021; Hashemi Motlagh et al., 2022; Gholami & Rostami, 2021; Ghorbani et al., 2020, 2021; Lahart et al., 2019). During childhood, participating in PA gives optimal contribution in coordination ability and sufficient motor experiences (Baniasadi et al., 2019; Chaharbaghi et al., 2022; Mohammad Gholinejad et al., 2019; Mohammadi et al., 2022; Naeimikia et al., 2018; Naeimikia & Gholami, 2018, 2020; Schwartz et al., 2019; Tremblay et al., 2011; Wafa et al., 2016; Yaali et al., 2018; Zhang et al., 2021). Thus, it can be expected that improving PA in children results in better balance performance.

The fact that in this study PA was measured using a questionnaire which may has self-reporting bias (Ghorbani et al., 2021) can be considered as a limitation. In addition, sample size of this study was relatively small. Thus, future studies should address these limitations.

5. Conclusion

To conclude, in this study, it has been found that children with ASD have low amount of PA and motor proficiency which make it necessary to adopt appropriate strategies and interventions to increase PA and motor proficiency among this population. As the results of this study indicated, increasing PA may act as a proper strategy for improving motor proficiency in children with AS. Future studies should focus on findings other strategies that might increase the level of PA and motor proficiency in children with ASD.

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Conflict of interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Research Paper: The Effect of Family Education on Digital Games Addiction

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Abstract

Harmful use of digital technologies is increasing among different age groups, especially children, in society. Therefore, it is essential to focus on this issue and educate families to empower them to deal with it properly. The present study aimed to investigate the effect of family education on digital game addiction. The study employed a quasi-experimental method with a pretest-posttest design and a control group. The statistical population of this study included male students of the fourth and fifth grades of the Farid School in Ramsar city, Iran, in the academic year of 2019-2020. The purposive sampling method selected 40 students, considering the sample attrition. Afterward, they were randomly and equally assigned to the experimental and control groups. Initially, the Videogame Addiction Scale for Children (VASC) was performed on both groups in the pre-test stage. Then, the experimental group completed a family education course. At the end of the training period, both groups performed the post-test again. The data were analyzed using covariance analysis and SPSS software version 24. The results showed that the mean of digital game addiction and its components in the experimental group decreased significantly compared to the control group ($p < 0.05$). Based on the findings obtained, it can be concluded that family education effectively reduces addiction to digital games. Therefore, designing and implementing training courses for families can help reduce their children's harmful use of new electronic technologies.

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1. Introduction

The psychological, social, and biological phenomenon called game has existed throughout history to fill leisure time and enjoy life, especially for children and adolescents. Games have been an integral part of people's lives.

Over time, traditional games were gradually marginalized, and the possibility of playing these games was reduced. This reduction was due to the new technological development and lifestyle changes, urbanization expansion, and mass media use. Consequently, the world was ready for the arrival of digital games (Cai et al., 2022).

Statistics showed that approximately 97% of children aged 6 months to 4 years used digital devices. In addition, about three-quarters of these children have mobile phones (Kabali, Irigoyen, Nunez-Davis, Budacki, Mohanty& et al., 2015).

Another study in the United States found that children ages 8 to 10 used digital devices for eight hours a day. Additionally, older children spend more than 11 hours daily using digital devices (Rideout, Foehr & Roberts., 2010). In addition, Fang and Bushman (2013) indicated that 59% of the fourth-grade girls and 73% of the fourth-grade boys preferred digital games to sports and strategy games.

The prevalence of Internet addiction in Iran is increasing (Seyedi Asl et al., 2013). For example, about eight million and seven hundred thousand people used digital games, including 31% of children and 69% of other groups. Furthermore, 13% of these people used console games, 91% used mobile games, and 22% used computer games. Besides, out of every thousand children in Iran, 69 people were gamers. Furthermore, Iranian child gamers averagely play 83 minutes daily (Nasiri,2019).

Regarding the importance of digital games, it should be noted that the asset turnover of digital games has gradually surpassed. Even Hollywood cinema and digital games affect all types of interactive media, from television to movies, mobile phones, and the Internet. They even change the lives of those who do not play (Balstrov, 2006).

In addition, Balstrov (2006) stated that "the information age is becoming the age of gaming, right under our noses." Moreover, digital games are one of the most important media that influence the socialization of children and adolescents in the present age (Miera, 2006; Santos et al., 2021).

Digital games also have positive effects. Training and increasing the speed and ability of management are the opportunities provided by digital games that can lead to positive outcomes for gamers (Chan et al., 2022; Jankiraman et al., 2021). Besides, these games activate children's creativity and gradually increase children's finger movement skills as a result of playing games with a keyboard (Ashwini et al., 2021).

On the other hand, in classic video games, the individual usually played the game alone, which is not accurate for current online games. Griffiths (2015) acknowledged that new online games allow players to interact due to the differences between online games and classic video games.

The positive effects of digital games include learning, rehabilitation, and business. However, they have adverse consequences such as aggression, social

isolation, a departure from the norm, and addiction (Addo et al., 2021).

According to the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), addiction or substance use disorder includes criteria such as poor impulse control, social disorder, risk-taking use, and drug tolerance (American Psychiatric Association, 2013). Therefore, addiction to digital games is often referred to as excessive and unhealthy digital gaming. Furthermore, in this type of addiction, the player spends most of his daily time playing games (Seyed Hosseini, 2016).

In addition, Internet gaming disorder is a form of emotional attachment to digital gaming. This disorder was not a formal diagnostic criterion until the release of the DSM-5 in 2013.

The inclusion of Internet Game Disorder in the third part of the DSM-5 indicated the provision of a common language for researchers and clinicians interested in further research and studies in this field. It helped to make better decisions about the possible placement of this disorder in later editions of the DSM.

Although online gaming addiction includes online games but not other digital games played offline, familiarity with its diagnostic criteria can be useful in understanding more about digital gaming addiction. Generally, research in the field of digital game addiction has increased significantly since 2005. Moreover, the impact of family on digital game addiction in children has been one of the important cases studied in this field (Gonzalez-Buesu et al., 2018; Torres-Rodriguez, Griffiths and Carbonell, 2018; Schneider, 2017).

Besides, research on Internet addiction and digital games has shown that adolescents addicted to the Internet were less satisfied with their families than non-addicts. More conflicts happened between their parents, and they felt their parents did not care about them (Lee and Wu, 2007).

For example, Hong et al. (2007) found that people with Internet addiction had a worse family environment than non-Internet addicts. These addicts felt that their parents showed less love for them and perceived less satisfaction from the family.

Additionally, it was found that a father's weak attachment to a child was associated with children's Internet addiction (Lee and Wu, 2007). Moreover, other studies found that the family functioning of adults with Internet addiction was impaired. Family functioning included behavioral control, problem-solving, relationships, and roles (Mansey, 2014).

In addition, a lack of strong parental support could lead to feelings of inadequacy and worthlessness. Therefore, people used digital games as a way to escape from reality. Furthermore, digital games could lead to family disputes over time (Brun, 2005).

On the one hand, in our society, many parents live in complex social and economic conditions. Yet, they have to maintain their standard of living in their critical period of life. Such a situation causes stress and tension, which overshadows their lives.

On the other hand, parents do not have much time and energy to communicate with their children. Moreover, they cannot prevent problems like digital game addiction by filling their free time.

However, family education, one of the dimensions considered by social planners, can play a vital role in preventing or reducing the severity of addictions' harmful effects on the family members. Besides, studies on Internet addiction and digital games found that family education and using different family therapy approaches effectively reduced children's Internet addiction (Nelson et al., 2021; Ghaffari and Ahmadi, 2007; Namdari et al., 2012).

Based on the above mentioned, the present study sought to answer the question: What effect does family education have on reducing the digital games addiction of the fourth- and fifth-grade elementary school students in Ramsar city?

2. Method

The present study had an applied purpose. It employed a quasi-experimental methodology with a pre-test and post-test design and a control group. The statistical population of this research included the fourth- and fifth-grade male students of the Farid School in Ramsar city, Iran, in the academic year of 2019-2020.

It is stated that the sample size in experimental research should be at least 15 people (Delavar, 2015). Moreover, according to the background research (Gonzalez-Bueso et al., 2018; Torres-Rodriguez et al., 2018; Vasiliu Vasile, 2017; Amini, 2015; Namdari et al., 2012; Zamani and Abedini, 2013), and taking into account the sample attrition by selective sampling method, 40 students were selected. They all obtained a cut-point above 90 in the pre-test and were randomly divided into two experimental groups (20 people) and a control group (20 people).

2.1. Instrument

Videogame Addiction Scale for Children (VASC)

Videogame Addiction Scale for Children was developed by Yilmatz, Griffiths, and Ken (2017). This scale consists of 21 items and four factors. The factors include self-control (articles 14, 18, 20, 25, 26, 27, and 30), reward / reinforcement (articles 3, 8, 13, 15, 18, and 29), problems (articles 2, 5, 9, and 10), and involvement (articles 16, 22, 23, and 28).

Furthermore, all items in the five-point Likert scale (1 = never, 5 = often) are answered by children. The overall scale score ranges from 21 to 105. According to Yilmaz et al. (2017), a score above 90 indicates a possible addiction to video games. However, this scale is not considered a diagnostic tool and only indicates that the child may be addicted to video games.

Yilmatz et al. (2017) study on girls and boys aged 9 to 12 confirmed this scale's factor structure. Moreover, Cronbach's alpha internal consistency for the scale's total score was 0.89. Besides, it was 0.84 for subscales including self-control, 0.83 for reward / reinforcement, 0.75 for problems, and 0.73 for involvement.

It is worth mentioning that this scale has not been used before in domestic research in Iran. Additionally, the internal consistency of the scale was 0.84 in the present study.

Family Education Protocol

In the present study, the family education protocol was based on previous studies in the field of individual and family therapies for digital game addiction (Gonzalez-Bueso et al., 2018; Torres-Rodriguez et al., 2018; Vasiliu Vasile, 2017; Lemos, Abreu &

Sougey 2014; Han, Kim, Lee, & Renshaw, 2012; Young, 2010). Behavior modification techniques (Miltenberger, 2015) were also considered for developing this protocol by relying on various teaching methods such as lectures, group discussions, educational booklets, videos, photos, homework, and acting.

In addition, the Family education courses were performed in 10 sessions, each one 2 hours, on the children in the experimental group and their parents. Table 1 provides an overview of the content of family education sessions.

Table 1

Overview of the content of family education course sessions

Number of the session	Content of sessions
1	Familiarize members and therapists with each other and review research objectives and training framework
2	Provide education to parents about the symptoms, types, causes, and treatment of drug addiction, behavioral and non-drug-related habits, and digital and online game addiction
3	Teaching the family dynamics and the roles and responsibilities of members
4	Teaching behavior modification techniques to parents
5	Teaching stress management skills to parents and children
6	Teaching relaxation techniques to parents and children
7	Teach parents how to change their attention and plan daily activities
8	Cognitive reconstruction of parents with the presence of a support group
9	Teaching self-monitoring to parents and children
10	Teach parents and children to recognize and regulate emotions

3. Results

The present study sample included 40 male students in the fourth and fifth grades of elementary school. The mean and standard deviation of students' age were 10.45 and 0.75 in the experimental group and 10.31 and 1.03 in the control group, respectively.

Moreover, the results of chi-squared test showed that the two groups in terms of fathers' education (P-value = 0.818, X^2 = 0.402) and mothers' education (P-value = 0.264, X^2= 2.667) were not significantly different. Furthermore, no significant difference was observed regarding fathers' occupation (P-value = 0.205, X^2 =3.167) and mothers' occupation (P-value = 0.344, X^2 = 2.133) in the two groups. The mean and standard deviation of digital game addiction and its components are also presented in Table 2.

Table 2

Mean and standard deviation of the variable of digital game addiction and its components

Variable	Experiment		Control	
	Pre-test	Post-test	Pre-test	Post-test
Self-control	1.118±31.23	1.277±26.50	1.395±32.50	1.182±32.87
Reward / reinforcement	1.333±26.25	1.496±21.65	1.276±25.57	1.164±26.41
Problems	1.142±17.63	1.761±15.45	1.508±18.27	0.834±18.49
Involvement	1.209±17.72	1.146±14.55	1.231±18.24	1.070±18.86
Digital game addiction	1.461±92.85	3.066±78.15	2.852±93.17	2.540±94.35

As Table 2 shows, the mean of digital game addiction and its components in the experimental group decreased in the post-test compared to the pre-test. However, the opposite was true for the control group .

Moreover, there was a significant difference between the mean scores of digital game addiction in the two groups of control and experimental in the pre-test stage ($p < 0.05$). Therefore, pre-test scores were analyzed as a control variable. The results of the covariance analysis of digital game addiction and its components are also presented in Table 3.

Table 3

The covariance analysis to compare digital game addiction and its components between the two groups

Component	MS	DF	F	Sig	Effect size	Power
Self-control	72.910	1	47.793	0.00	0.585	1
Reward / reinforcement	108.717	1	57.357	0.00	0.628	1
Problems	11.295	1	5.843	0.02	0.147	0.651
Involvement	39.509	1	32.673	0.00	0.490	1
The total score of digital game addiction	846.019	1	112.815	0.00	0.753	1

As Table 3 demonstrates, the probability value of the test for the components of self-control ($p<0.001$), reward/reinforcement ($p<0.001$), problems ($p<0.05$), involvement ($p<0.001$), and the total score of digital game addiction ($p<0.001$) was significant. Therefore, family education reduced digital game addiction in the experimental group compared to the control group.

Additionally, according to the effect size, it was found that 58%, 62%, 14%, 49%, and 75% of the difference in scores between the components of self-control, reward/reinforcement, problems, involvement, and the total score of digital game addiction, respectively, was affected by family education.

4. Discussion

The current study aimed to investigate the effect of family education on digital game addiction. The findings showed that family education decreased digital game addiction in the experimental group compared to the control group.

This finding was consistent with the findings of other studies that examined family-based treatment strategies for children's digital game addiction (Gonzalez-Bueso et al., 2018; Torres-

Rodriguez et al., 2018; Vasiliu Vasile, 2017; Lemos Et al., 2014; Han et al., 2012; Young, 2010). For example, Gonzalez-Buesu et al. (2018) found that cognitive-behavioral therapy based on family psychological education effectively reduced adolescent online gaming addiction.

Moreover, Torres-Rodriguez et al. (2018), in a study of adolescents aged 12 to 18, found that family-based therapy combined with individual interventions reduced the symptoms of online gaming addiction and increased adolescent well-being .Vasiliu Vasile (2017) also found that ten weeks of cognitive-behavioral therapy reduced the time spent playing online games by 50%, sustained during the 20-week follow-up period.

When people are affected by a psychological disorder, family members may sometimes not know how to help them. As a result, they may behave in a way that preserves or even worsen various aspects of the disease. According to the findings, it can be said that family education creates a better environment at home, thus, solving family problems and understanding the unique problems that a family may face (Varghese et al., 2020).

In the present study, some treatment sessions focused on informing parents about the symptoms, types, causes, and treatment of behavioral habits. For instance, the sessions included digital and Internet game addiction and their disadvantages and advantages, behavior modification techniques, homework, and family members' roles.

Consequently, parents could gain a deeper insight into the behavioral habits of their children. As a result, they could better adjust the hours their children spent playing digital games and doing other tasks and roles.

Increasing family members' relationships was another consequence that helped improve the quality of their relationships and thus reduced tensions between them. Children will perform better, and their level of healthy behaviors will be enhanced in an intimate atmosphere.

Accordingly, Kerat (1998), in a 2-year long-term study on Internet users, found that the increasing use of the Internet was associated with reduced family relationships and participation in social circles. In addition, their participants experienced social isolation and depression due to Internet use.

Furthermore, students participating in the family education course could have better mindfulness, realism, and flexibility. That’s because they learned stress management skills, relaxation techniques, changing attention methods, daily planning activities, and avoiding excessive use of digital games. Self-monitoring training, emotion recognition, and regulation also reduced online games' compensatory use in moderating negative emotions.

Besides, this study was associated with some limitations. The lack of a follow-up period led to restrictions on recording changes over time after the training course. Moreover, only male students participated in this study. Other limitations of the present study were the difficulty of coordinating the training sessions with parents and their children and the cooperation of school officials.

Children's use of digital games has increased, and the time parents spend with their children has decreased due to

economic problems and insufficient cultural training .Therefore, it is suggested that family education be considered one of the main areas of attention in educating children.

5. Conclusion

Family education courses can give parents more control over the quality and quantity of their children's digital games. In addition, it can help parents in preventing their children from playing unhealthy games.

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Conflict of Interest

The Authors declare that there is no conflict of interest with any organization. Moreover, this research did not receive any specific grant from the public, commercial, or not-for-profit funding agencies.

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Research Paper: The Effect of Group Counseling based on Choice Theory on Homesickness and Emotion of Thought

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Abstract

The present study compared the effectiveness of group counseling based on choice theory on homesickness and emotion of thought. Research design was quasi-experimental administering a pretest-posttest on an experimental and a control group. The population of this study included all students (female and male) referred to counseling center of Sari Payame Noor University in the academic year 2016-2017. The sample consisted of 30 participants who were randomly divided into two groups (one experimental group and one control group) (15 students in each group). Then, homesickness questionnaire and emotion of thought questionnaire were administered to both groups. For two months, the experimental group received 8 sessions of 90 minutes of group counseling based on choice theory; however, the control group did not receive any training during this period. Pre-test and post-test data were analyzed using covariance analysis. The results showed that experimental interventions (group counseling based on choice theory) reduced homesickness score, decreased impatience of thought and increased dynamics of thought in students ($p<0.01$). It can be concluded that group counseling of choice theory was effective in improvement of emotion of thought and decreasing homesickness.

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1. Introduction

Every year, many people leave their families to enter the university. This, in addition to pleasant advantages and outcomes, leads to stressful consequences. These consequences are due to changes in lifestyle, missing out friends and family, disruption of routines and the necessities of adapting to a new environment. Changes in lifestyle include different levels of physical changes (e.g., changes in geographic location), biological (new food conditions), cultural and communication, psychological, etc. Likewise, changes in values, capabilities, motivations and attitudes are noted (Thurber et al., 2007). By creating severe stress in an individual, these changes can disturb the balance between internal resources and external desires leading to the occurrence of roving sensations. Therefore, homesickness is defined as distress or dysfunction, caused by actual or anticipated separation from home and attachment issues, such as parents (Thurber & Walton, 2007). The most important signs of homesickness are feeling sad, being depressed, having excessive sadness about losing the support of those around you, having anxiety, being away from people and feeling nostalgic (Thurber & Walton, 2007).

The most important psychological characteristics of homesickness include having strong obsessive thoughts about home, desiring to return home, feeling deep sadness about homeland belongings (family, friends, acquaintances, objects and places), and having simultaneous emotions of sadness, distress, experiencing suffering and confusion in a new place (Skaalvik & Skaalvik, 2013). Agassinejad et al. (2020) revealed that there was a significant correlation between family functioning and differentiation with feeling of nostalgia. Based on regression analysis, about 40% of the variance of roving feeling was explained by self-differentiation variables, roles, problem solving, overall family functioning, emotional intercourse and emotional companionship. Problem solving, differentiation, roles, emotional intercourse, overall family functioning and emotional companionship were the strongest variables for predicting roving feelings of female and male students in the dormitory, respectively. Since parenting style and family functioning play a vital role in children's homesickness, it is necessary to familiarize counselors and psychologists of families with more effective parental models as well as the characteristics of an efficient and balanced family.

Going to university is stressful; stress can affect different physical, psychological and social dimensions of individuals (Khazaei et al., 2013) causing some kinds of problems. The emotion of thought can refer to *cognitive tenacity*, *emotional vibration*, *dynamism* and *impatience* when confronting any problems in life. *Dynamism* means that there is a intense feeling of enthusiasm and attraction toward having extensive experience to find something, and impatience refers to *apprehensiveness*, that is inner dilemma and agitation as a result of *circulation of thought* followed by *physical manifestations* forcing the person to do something (Kazemi Haghighi, 2007). Thought emotion theory concentrates on the integrated nature of emotional and cognitive domains of creativity and considers the process of creativity as a result of cognitive and emotional transformations. Correspondingly,

emotional turmoil prevents a person from using his/her creative force to create broad ideas and ideas. Therefore, coordination of thought and emotions are important for creative processing. Most students with this feeling are weak in the field of social interactions, especially meeting and contacting other people as well as receiving support, when faced with stressful factors, have a lot of stress and anxiety and lose the power of thinking as well as adapting with the environment constructively and usefully, thus acting very passively in the new environment.

Therefore, it is necessary to know and apply therapeutic approaches that are effective in reducing the feeling of homesickness and emotion of thought in students. Nowadays, the concepts of Glasser's choice theory have gained a special place in mental health (Malekitabar & Riahi, 2017). Glasser (1999) established the theory of choice, in which he emphasized five basic needs (survival, belonging, power, freedom and fun) that motivate all human behavior (Ebnosharieh & Aghili, 2019). Choice theory is an internal part of control theory which explains how and why we choose the path we take in life (Wabolding, 2010). Choice theory is a process with an emphasis on choice, responsibility and personal evaluation, in which an individual responds to the choices and consequences. This theory attempts to inform an individual about meeting his/her needs, leading him/her towards focusing on external factors and towards putting emphasis on his/her abilities and taking more responsibility. Glasser (1999 as cited in Wubbolding, 2010) repeatedly notes that choice theory and reality therapy shape the internal control system that is needed to improve mental health. Teaching choice theory can help people to understand their needs and abilities, the motivation necessary to deal with various problems of work, education, etc. as much as possible. Shojarazavi et al. (2022) stress that reality therapy sessions had a significant effect on increasing public health and reducing negative automatic thoughts of divorced women in the experimental group compared to the control group.

According to what was said, the main question of the present research is:

Whether group counseling based on choice theory effective in roving feeling, emotion of thought and promoting students' motivation is differentiating?

2. Method

The research design was quasi-experimental with pre-test-post-test and control group. The population of the present study included all students (female and male) referred to the counseling center of Sari Payame Noor University in the academic year 2015-2016. At first, the questionnaire on homesickness and the emotion of thought were administered on the clients of these centers, and 30 people were selected from among them by the purposeful sampling method and were randomly assigned to two experimental and control groups.

2.1. Measures

Homesickness Questionnaire: Based on Van Vliet (2001), Zare and Aminpour (2012) standardized the homesickness questionnaire to gauge Iranian students' homesickness which includes 36 items and 5 components with the minimum and maximum scores of the questionnaire between 36 and 180. The reliability of the

test was 0.83 using the internal consistency method employing Cronbach's alpha (Ezheei et al., 2008).

The emotion of thought questionnaire: This is a twelve-factor test of *emotion of thought* consisting of sixty-nine questions and has two scales of *dynamism* and *impatience*, each of which measures six factors. Torque correlation coefficients as a validity index for dynamic scale was between 0.39 and 0.74 and for impatience scale was between 0.40 and 0.75. Correlation coefficients of two scales were 0.13, impatience scale and test was 0.76 and dynamic scale and test was 0.67 (Kazemi Haghighi, 2007). In Ghanbarinejad et al. (2021), the reliability of emotion of thought scale using Cronbach's alpha for impatience score was 0.77 and for dynamics equal to 0.74 and for the whole scale was 0.75.

A summary of group therapy sessions based on choice theory is given in Table 1.

Table 1

Group counseling training sessions based on choice theory

Sessions	Description of meetings
Session 1	Getting familiar with each other and the introduction and expression of the rules and principles governing group counseling and entitlement about the concepts of choice theory, introducing fundamental needs to subjects, familiarity with the intensity of the needs and plotting the needs of the needs.
Session 2	Specifying the estimate of half the needs of students and getting acquainted with Total Behavior (thinking, acting, feeling, physiology) to increase recognition and awareness of each member of the group.
Session 3	Getting familiar with the concept of reality therapy and creating a sense of responsibility to satisfy basic needs.
Session 4	Teaching reality therapy techniques and getting familiar with the concept of external control and its destructive role in intimate relationships and replacing it with the theory of choice (internal control) instead of external control.
Session 5	Getting acquainted with how to negotiate the inconsistent needs and recognize the goals and values and recognizing the basic needs (the need for survival, the need, the need for fun, the need for freedom, the need of belonging) and identity.
Session 6	Teaching the concept of qualitative world and expressing the importance of sharing the qualitative world of students and their satisfaction and how to plan to solve the problem with respect to current behavior.
Session 7	Getting familiar with the concept of conflict and conflict relationship with the quality world and the fundamental needs and training some of the techniques to increase happiness.
Session 8	Getting back from previous meetings.

2.2.data collection

In order to conduct the present study, Payam-e-Noorshahr University in Sari was chosen, from which a list of all students referred to the counseling center located at the university was received and after the necessary coordination and agreement with the participants and putting emphasis on confidentiality of the information obtained and observance of the ethical issues, the

researcher administered the questionnaires of homesickness and emotion of thought (pre-test), then 30 people were selected by purposeful sampling and then in two groups. Participants were randomly assigned to one experimental group and one control group (each group 15 participants); then, the experimental group received 8 sessions of 90 minutes of choice theory training and the control group did not receive any training; after the relevant training, the homesickness and the emotion of thought were measured again in the experimental group as well as the control group (post-test) and then the data were analyzed.

3. Results

The following section contains the obtained results from the pre-test and the post-test.

Table 2 mentions the demographic characteristics of the research participants.

Table 2

Demographic characteristics of the research participants

Variable	Level	Frequency	Percentage
Age	20-25 Years	13	42.23
	26-30 Years	17	57.77
Gender	females	20	57.78
	man	10	42.22
Total		30	100

Table 3 illustrates the mean and standard deviation for emotion of thought and homesickness are in pre-test and post-test for experimental and control group.

Table 3

The mean and standard deviation of homesickness and emotion of thought research groups in pre-test and post-test

Variables	Test	Experimental group (choice theory)		Control Group	
		Mean	Standard Deviation	Mean	Standard Deviation
Homesickness	Pre-test	133.80	15.55	135.33	15.55
	Post-test	70.40	9.75	134.40	14.17
Impatience of thought	Pre-test	84.13	9.10	75.93	9.63
	Post-test	51.06	12.35	72.33	11.43
Dynamics of Thought	Pre-test	59.53	11.40	66.40	11.62
	Post-test	79.86	10.76	66	12.24

As seen in Table 3, the mean of homesickness and impatience of thought in the experimental group decreased more than the control group. On the other hand, the mean of dynamic of thought in the experimental group increased more than the control group.

For data analysis, univariate analysis of covariance was used, the results of which is shown in Table 4.

Table 4

Analysis of covariance homesickness in the post-test stage between groups (group counseling based on choice theory and control group)

Variable	Source	SS	Df	MSE	F	P -value	eta
Feelings of nostalgia	pre-exam	1888.60	1	1888.60	22.59	0.001	0.456
	Group membership	29781.15	1	29781.15	356.32	0.001	0.930
	Error	2256.59	27	83.57			
	Total	949438	30				

Based on the results obtained from Table 4 and after calculating the pre-test scores as covariate scores in groups, the results of covariance analysis showed that there was a significant difference between the two groups at (P<0.001) significance level. It could be concluded that after being given consoling based on choice theory, those participants in the group counseling were able to achieve the total score which means the reduced levels homesickness; that is to say, group counseling based on the theory of choice had a significant effect on reducing the score of homesickness in students referring to the university counseling center.

Table 5 reveals the results of multivariate analysis of covariance to determine the difference between the control and experimental groups in the impatience and dynamism of thought.

Table 5

results of multivariate analysis of covariance for the difference between the control and experimental groups in the impatience and dynamism of thought

Variable index	Multivariate tests	Value for observation	F	df	Error df	P - value	eta
Group	Pillayi trace	0.675	25.92	2	25	0.001	0.67
	wilks' lambda	0.325	25.92	2	25	0.001	0.67
	Hotelling's Trace	2.07	25.92	2	25	0.001	0.67
	Roy's Largest Root	2.07	25.92	2	25	0.001	0.67

According to table 5, there was a significant difference between the two groups in impatience and dynamic of thought (p<0.001). In other words, it could be said that the difference between scores expresses that the effects on group

counseling based on the theory of choice in the scores of dynamic and impatience of thought was meaningful.

The results of the multivariate covariance analysis (inter-group effects) of dynamics and impatience of thought score in the post-test stage between groups are tabulated in Table 6.

Table 6

Multivariate covariance analysis (inter-group effects) of dynamics and impatience of thought score in the post-test stage between groups

Source	Source	SS	df	MSE	F	P - value	Power of test	eta
pre-test	Dynamics of Thought	5.84	1	5.84	0.046	0.832	□□□□□	0.002
	Impatience of thought	641.53	1	641.53	5.03	0.034	□□□□□	0.162
Group membership	Dynamics of Thought	2368.18	1	2368.18	29.72	0.001	□□□□□	0.533
	Impatience of thought	3615.13	1	3615.13	28.39	0.001	0.404	0.522
Error	Dynamics of Thought	79.66	26	79.66				
	Impatience of thought	127.32	26	127.32				

The results indicated that by considering the pre-test scores as covariance scores, the difference between the two groups in the scores of dynamic and impatience of thought tests were significant (p=0.001). In other words, the differences between the two groups (group consoling based on choice theory and the control group) stressed that group counseling based on choice theory was able to increase the dynamic of thought score and reduce the score of impatience of thought in the participants.

4. Discussion

The purpose of this study was to compare the effectiveness of group counseling based on choice theory on the feeling of homesickness and emotion of thought in students. The result of the research revealed that group counseling based on choice theory was effective in improvement of the emotion of thought; these results are consistent with research by Ghanbarnejad et al (2021). Likewise, the result of this research has shown that this counselling method was effective in reducing homesickness; however, to the knowledge of the researcher, there has been no similar research done regarding the variables of the present study.

To explain the results, it can be said that participating in group sessions could increase the actions and reactions of group members resulting in the exchange of information and broadening the experiences of each student in educational sessions and getting them familiar with the basic needs of Glasser (1999), responsibility in doing things and gaining familiarity with total behavior (thinking, acting, physiology, feelings) leading to decrease in the homesickness. On the other hand, Glasser (1999 as cited in Masten & Barnes, 2018) believed that the not judging, the sense of responsibility, the proper control and proper satisfaction of needs, especially the need for love and belonging in the group which would be desirable, improves mental health.

The nature of group education could have a positive effect on increasing psychological well-being and dynamics in students. Because of the members of the group, every individual person in the group felt that he/she had similar problems to other members of the group; thus, it would be effective in reducing the impairment and reducing the negative spirit which in turn could result in increasing the dynamics (the emotional component of thought) among group members. Therefore, group counseling with choice theory can promote dynamism of thought and reduce homesickness in students (Zare & Namdarpour, 2020). Glasser (2003) stated that individuals can save their lives with the conscious selection of their feelings and behavior. He stressed that the theory of choice or what was later called control theory insists on the fact that humans have always behaved in a way that control the world and make themselves as part of the world to serve their main needs. In using the choice theory in group consoling, it is taught to people to face with their problems and problems to make them be prepared for living in the community, in addition to those who encounter other people with similar problems. This can certainly be relief for people (Raddadi et al., 2017). Given the fact that in the choice theory and in the present study, the basic needs of mankind, especially the two needs of exchange of love and affection as well as the need for focusing on the sense of value and trying to deal with them were highlighted, training these abilities to students could have an important impact on reducing homesickness and impatient of thought and increasing dynamic of thought in them.

This research, like any other research, had limitations; since the population of the study was limited to the students of Sari Payame Noor University, this can create restrictions on the external validity of the research and generalization of the results.

5. Conclusion

In general, the results of this study illustrated that the teaching of choice theory was effective on homesickness as well as emotion of thought. Consequently, psychologists and consultants can use the results of this research in counseling and psychotherapy centers to help people.

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Conflict of Interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Research Paper: The Effectiveness of Cognitive Behavioral Therapy on Coping Strategies and Depressed Women's Quality of Life

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Abstract

Depression is the most common psychiatric disorder. It is twice as prevalent in women as men, seriously affecting the mental health of the former group. Therefore, it is crucial to use therapeutic modalities to reduce it. For this reason, this study aimed to investigate the effectiveness of cognitive behavioral therapy on coping strategies and depressed women's quality of life. This research employed a quasi-experimental method with pre-test and post-test design studying an experimental and a control group. The population consisted of all women who were referred to counseling centers in Mashhad in 2018, scored higher than 13 on the Beck depression test. Through purposive sampling method, 30 of them were selected as a sample and then randomly divided into an experimental and a control group (15 in the experimental group - 15 in the control group). The Beck Depression Inventory (II-BDI), The Coping Inventory for Stressful Situations (CISS), and The World Health Organization Quality of Life Questionnaire-Brief Version (WHOQOL-BREF) were used to collect data. The data were analyzed conducting MANCOVA. The findings indicated that there was a significant difference between the experimental and control groups in the post-test of emotion-focused and avoidance coping strategies ($P<0.05$). However, there was no significant difference between the two groups in the problem-focused coping strategy ($P>0.05$). Correspondingly, the results of the quality-of-life questionnaire indicated a significant difference between the two groups in the variables of social, psychological, physical, and environmental quality of life ($P<0.05$). As a result, it can be said that cognitive behavioral therapy can be used as an efficient therapeutic modality to reduce emotion-focused and avoidance coping strategies in depressed patients in the clinical environment. Similarly, using this therapeutic modality increases the level of quality of life in these patients.

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1. Introduction

Nowadays, one of the disorders that have become very prevalent in women is depression, threatening their mental health (Sadock & Ruiz, 2015). This disorder is characterized by anhedonia, seclusiveness from family and friends, lack of motivation and intolerance of failure, decreased sexual desire, weight loss or gain, and sleep disturbance (Chen et al., 2000). One of the fundamentally important consequences of this disorder is the disturbance in occupational, social, and interpersonal functioning (Yanartas et al., 2016). The prevalence of depression in women varies from 12% to 15% in mixed methods, but in different groups, this incidence is different. For example, the prevalence of depression in women varies from 5% to 25% in developed countries, and other risk factors involved in women suffering from depression include gestational diabetes, depression during pregnancy, and epidural anesthesia during delivery (Liu et al., 2022). One of the dimensions that are strongly affected by depression in women's lives is the quality of life (Hajek & König, 2022).

Quality of life is one of the crucial issues in today's health care and one of the greatest health goals to improve people's health, strongly affected by depression (Oei & McAlinden, 2014). The World Health Organization considers quality of life as a multidimensional concept and defines it as the understanding of each person's life, values, goals, standards, and individual interests. The sense of security, emotional conflicts, personal beliefs, goals, and the level of tolerance against failures and frustrations are effective in determining the type of self-perception of a person (Salsman et al., 2013). Research has indicated that in different groups of women, including women with breast cancer (Aydin et al., 2021) and pregnant women (Soyemi et al., 2022), women who are constantly subjected to brutality (Ngocho et al., 2022) women who are exposed to chronic physical diseases such as cancer (Kugbey, 2022), depression is one of the factors that severely reduces their quality of life level.

One of the prominent components of the quality of life and one of the important factors causing and perpetuating depression is the type of coping strategies an individual adopts in stressful situations. People use different coping strategies to get rid of psychological pressure caused by different diseases.

Lazarous and Folkman (1984) consider coping as a person's intellectual, emotional and behavioral efforts that are used when faced with psychological pressure to overcome, tolerate or minimize the effects of psychological pressure (Borna et al., 2015). According to Lazarous and Folkman (1984), there are two types of coping strategies, problem-focused coping and emotion-focused coping. Problem-focused coping is a cognitive strategy in which an individual directly faces one's problems and endeavors to solve them. Emotion-focused coping is an attempt at being emotionally responsive to stress, especially with the help of defense mechanisms. In this way, a person avoids everything, justifies or denies the events that have happened, or rely on his/her religious faith against them (Kharamin et al., 2008). Endler and Parker (1990) have also divided people into three groups of people with problem-focused, emotion-focused, and avoidance coping strategies according to their chosen coping strategy.

Cognitive behavioral therapy is an efficient therapeutic modality used to improve coping strategies as well as individuals' quality of life, suffering from depression. Cognitive behavioral therapy has emerged from the combination of two approaches, behavioral therapy, and cognitive approach, either in the form of cognitive therapy or in the framework of cognitive psychology and basic cognitive science. Nowadays, this approach contains relatively different theories and attitudes, the only common aspect of which is paying attention to the mediating role of cognitive processes in information processing and the emergence of a person's response to stimuli. This approach uses terms and concepts that somehow make sense in the behavioral framework and are considered to be able to be evaluated and measured (Hayes et al., 2017).

This therapeutic modality helps the patient to identify his/her negative thoughts and examines them. The core of the cognitive behavioral approach is mainly based on self-help; additionally, the goal of the therapist is to help the patient to develop necessary skills not only to solve current problems, but also to develop similar problems in the future. Generally, it can be said that the goal of this treatment is to identify and reconstruct irrational beliefs and beliefs concerned with self, others, and the world, which play an essential role in creating emotional disturbances and maladaptive behaviors. Moreover, this approach is inherently respectful and cooperative and increases the self-efficacy of the therapist (Pearson, 2008). In addition, reinforcing coping skills, training intrapersonal as well as interpersonal skills, and reinforcing the control of painful emotions such as anxiety and anger are essential tasks in this treatment (Beck, 2011). Up to the present, the effect of cognitive behavioral therapy on increasing marital quality (Shayan et al., 2018), improving hopefulness as well as increasing psychological well-being (Baker et al., 2016), improving depression and quality of life (Oei & McAlinden, 2014; Ingram et al., 2021), mood disorders (Sugarman et al., 2010) have been confirmed.

Considering the importance of women's standing in society and their role in the comprehensive development of the country, being aware of their health status, knowledge and the factors affecting it should be the basis of appropriate planning and policy-making to improve their progress status (Ghorbani & Golchin, 2008). Depression is one of the most common disorders that endangers the health of this group. It is crucial to take measures to prevent and treat this disorder to increase the quality of life and health of this group. Improving coping strategies when dealing with stressful situations is one of the best ways to achieve this goal. One of the prioritized treatments in improving people's coping strategies is cognitive behavioral therapy. Therefore, the main issue in this research is whether cognitive behavioral therapy is effective in coping strategies and impacting depressed women's quality of life.

2. Method

In this research, a quasi-experimental method was used, running a pre-test and post-test with an experimental and a control group. The population of this research included all women who were referred to counseling centers in Mashhad in 2018, on

whom the Beck depression test was first performed. The participants who scored higher than 13 on the Beck depression test (30 women) were selected as a sample using the purposive sampling method. They were randomly assigned into the experimental group and the control group (15 women in each). The treatment administered to the experimental group and during this period, no treatment was given to the control group. Before the start of the treatment sessions, questionnaires were completed by both groups. After the completion of the treatment sessions, the questionnaires were completed again and the results of the two groups were compared. To comply with the ethical principles, after the end of the research, the treatment period was administered to the participants of the control group. Inclusion criteria: having a depression score higher than 13 on the Beck depression test, not using psychiatric medications at the same time, and not using other therapeutic modalities concurrently. Exclusion criteria: the presence of concurrent psychiatric disorders with depression and being absent in at least 2 treatment sessions. Descriptive statistics and inferential statistics (multivariate analysis of covariance, MANCOVA) were used for data analysis with SPSS 22 software. Written consent was obtained from all participants for participating in the research.

2.2. Tools

Beck Depression Inventory (BDI-II): This questionnaire was created by Beck (1961) to measure the feedback and symptoms of depressed patients. The questionnaire consists of a total of 21 items related to different symptoms to be completed on a four-point scale from zero to three. These items are in areas such as sadness, pessimism, feelings of helplessness, failure, guilt, sleep disturbances, loss of appetite, self-loathing, etc. Accordingly, 2 items are dedicated to emotion, 11 items to cognition, 2 items to overt behaviors, 5 items to physical symptoms, and 1 item to interpersonal semiotics. Therefore, this scale determines different degrees of depression from mild to very severe, and its scores range from minimum, zero, to maximum, 63, (none or minimal depression: 0 to 13; mild depression: 14-19; moderate depression: 20-28; severe depression: higher than 29). Beck (1961) obtained the test-retest reliability coefficient of 0.93 after one week. Various studies were conducted on the validity of this questionnaire. Its average correlation coefficient with the Hamilton Rating Scale for Depression (HRSD), Zung Self-Rating Scale[1], (MMPI) Depression scale[2], Multiple Affective Scale of Depression, and (SCL-90)[3] is more than 0.60. In Rajabi et al.'s (2013) research, a reliability of 0.92 was obtained using Cronbach's alpha method. Its construct validity was also confirmed.

Coping Inventory for Stressful Situations (CISS): This test was prepared by Endler and Parker (1990) to measure the coping methods of adolescents and adults in stressful and critical situations, which includes 48 items; the questions have a 5-point Likert scale, and are scored from 1 to 5 assigned to the choices "not at all" to "extremely". It measures the three main

[1] The Zung Self-Rating Depression Scale (SDS), The Zung Self-Rating Anxiety Scale (SAS)

[2] The Minnesota Multiphasic Personality Inventory Depression scale

[3] The Symptom Checklist-90

areas of coping behaviors, which are problem-focused, emotion-focused, and avoidance coping strategies (Borna et al., 2015). Each category contains 16 questions, which are scattered throughout the questionnaire to control side effects (Qiasi et al., 2016). The overall internal consistency coefficient of this scale was reported to be 0.92. Besides, its reliability was 0.83 for the whole scale; for the subscales of problem-focused, emotion-focused, avoidance of disturbance and avoidance of inclination to society the reliability is measured as 0.86, 0.81, 0.68, and 0.69 respectively (Ghoreyshi Rad, 2010).

World Health Organization Quality of Life Questionnaire-Short Form (WHOQOL-BREF): The World Health Organization Quality of Life Questionnaire (WHOQOL Group, 1998). has 26 questions evaluating four domains of individuals' quality of life, including physical health, mental health, relationships with others, and living environment. Each item is scored in a range from (1 to 5) (not at all, slightly, moderately, very, extremely), or (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree) respectively. Cronbach's alpha coefficient of this test was reported to be between 0.73 and 0.89 for four subscales and the whole scale. Moreover, for the scale's reliability in Iran, Nasiri (2005) used three methods of test-retest with a three-week interval, split-half, and Cronbach's alpha, which were equal to 0.67, 0.87, and 0.84 respectively. Yousefi (2009) employed the correlation of the total score of each dimension with each and every constituent question of that dimension to determine the validity. The range of obtained correlation coefficients was from 0.45 to 0.83 and all coefficients were significant at the 0.01 level. Each item had the highest correlation with its related dimension.

Treatment sessions

Session	Description
First session	Welcoming, Stating the goals and explaining the process of treatment sessions.
Second session	Teaching the participants about the cognitive-behavioral model of depression.
Third session	Teaching them how to identify negative automatic thoughts and recognize them in depressing situations, using other cognitive behavioral therapy techniques, providing homework based on the methods implemented in the session
Fourth session	Identifying types of cognitive distortions and writing them on a special sheet. Homework: recording negative thoughts and cognitive distortions related to them.
Fifth session	Challenge with negative automatic thoughts, identifying and correcting mediating beliefs (assumptions, rules, dos). Homework: Completing the sheet expressing the advantages and disadvantages of automatic thoughts, Completing the coping card, and filling out the worksheet on negative automatic thoughts.

session	Description
Sixth session	First part: reviewing and emphasizing what was learned in the previous session, Second part: recalling fundamental beliefs and changing them, homework: identifying and recording dos and don'ts and finding their contradictions, filling out the daily activity worksheet, recording some new beliefs.
Seventh session	Explaining the negative role of being unemployed and worsened depression, helping the respondents to make independent decisions in doing the activity, homework: filling out the daily activity worksheet, summarizing everything they learned during the sessions and the problems they have with them.
Eighth session	Solving the respondents' problems, re-explaining concepts such as (challenging negative automatic thoughts, changing and correcting mediating and fundamental beliefs) Homework: practicing imagery rescripting about past and future events.
Ninth session	Summing up and reviewing previous sessions, reinforcing new main beliefs.
Tenth session	Reinforcing the new main beliefs and filling out the questionnaires again

It should be noted that the sessions were conducted by the researchers who are experts in cognitive and behavioral fields, and there was no drop-off in the number of respondents during the sessions.

3. Results

The mean and standard deviation of the age of the experimental group and the control group were 31.53, 8.42, and 30.95, 8.75 respectively. In terms of education, 13% were lower than a bachelor's degree, 60% of the experimental group had a bachelor's degree, and 27% had a master's degree. In the control group, 20% held a degree lower than BA, 53% had a bachelor's degree, 20% had a master's degree, and 7% had a doctorate.

Table 1 indicates the descriptive statistics of the research variables in the experimental and control groups in the pre-test and post-test stages.

Table 1
Descriptive indicators of research variables

		Pre-test		Post-test	
Variable	Groups	Mean	Std.deviation	Mean	Std.deviation
Social quality of life	Experiment	12.53	2.72	15.40	2.69
	Control	13.46	2.82	15.40	2.87
Psychological quality of life	Experiment	11.40	1.72	14.2000	1.85
	Control	18.80	4.81	21.06	4.80
Physical quality of life	Experiment	12.66	2.58	14.46	2.50
	Control	12.26	1.98	14.33	1.54
Environmental	Experiment	17.80	4.63	19.73	4.49
	Control	16.90	1.54	6.26	1.57
Problem-focused	Experiment	22.33	5.63	23.06	5.31
	Control	23.93	5.96	25.73	6.14
Emotion-focused	Experiment	28.13	7.30	28.60	6.78
	Control	29.53	7.40	32.26	7.25
Avoidance	Experiment	27.20	6.13	28.93	5.70
	Control	28.13	6.77	30.60	6.46

To evaluate the homoscedasticity, Levene's test was used. The results of the data obtained indicated that the significance level of all variables was greater than 0.05. Therefore, the assumption of homoscedasticity[4] in the post-test stage related to the research variables was confirmed.

The Shapiro-Wilk test was used to check the normality of the distribution of the variables (p>0.05). The results indicated that the significance level for all variables was higher than 0.05. Therefore, the assumption of normality of distribution was also confirmed.

The Box's M test was also run to investigate the variance-covariance matrix, and the results showed that the assumption of homogeneity of the variance-covariance matrix in the post-test stage related to the research variables was confirmed (p>0.05).

In Table 2, multivariate analysis of the covariance test used for statistical analysis is tabulated.

Table 2
Multivariate statistical indicators in multivariate analysis of covariance

Tests	Value	F	Hypothesis df	Error df	Sig
Pillai's Trace	0.670	4.350[a]	7.000	15.000	0.012
Wilks's Lambda	0.330	4.350[a]	7.000	15.000	0.012
Hotelling's Trace	2.030	4.350[a]	7.000	15.000	0.012
Roy's Largest Root	2.030	4.350[a]	7.000	15.000	0.012

As can be seen in Table 2, the significance level of all four tests (0.012) was less than 0.05, which highlighted the difference between at least one dependent variable (quality of life and coping strategies) in the experimental and the control group. In other words, cognitive behavioral therapy had a positive effect on at least one of the dependent variables.

In Table 3, the results of the analysis of covariance to investigate the effect of cognitive behavioral therapy on coping strategy and quality of life are presented.

Table 3
Results of multivariate analysis of covariance test the effect of cognitive behavioral therapy on coping strategies and quality of life

Variables	SS_b	Df	MS	F	Sig	Partial Eta squared
Problem-focused	1.081	1	1.081	0.745	0.835	0.002
Emotion-focused	9.911	1	9.911	8.510	0.004	0.334
Avoidance	0.064	1	0.064	0.201	0.048	0.267
Social quality of life	4.145	1	4.145	2.864	0.035	0.261
Psychological quality of life	0.972	1	0.972	1.325	0.051	0.101
Physical quality of life	0.543	1	0.543	0.942	0.031	0.099
Environmental quality of life	1.210	1	1.210	1.965	0.040	0.876

[4] Homogeneity of variances

The results of Table 3 reveal that there was a significant difference between the experimental and the control group in the post-test stage in emotion-focused and avoidance coping strategies (P<0.05). However, there was no significant difference between the two groups in the problem-focused coping strategy (P>0.05). Therefore, it could be said that cognitive-behavioral training had an effect on the emotion-focused and avoidance coping strategies of depressed women, but it had no effect on the problem-focused coping strategy. Moreover, the results in the quality-of-life section suggested a significant difference between the two groups in the variables of social, psychological, physical, and environmental quality of life (P<0.05). Consequently, it can be said that cognitive behavioral therapy affects the quality of the social, psychological, and physical life of depressed women. The Partial Eta squared also explains the effect of cognitive behavioral therapy on the variables of coping strategies and quality of life.

4. Discussion

The purpose of this study was to investigate the effect of cognitive behavioral therapy on coping strategies and depressed women's quality of life. The results showed that this treatment had a positive effect on emotion-focused and avoidance coping strategies and quality of life, which is in agreement with the findings of researchers (Shayan et al, 2018; Bakker, 2018; Kanter et al., 2015; Oie & McAlandin, 2014; Sugarman et al., 2010; Osilla et al., 2009).

Findings regarding the effect of cognitive behavioral therapy on depressed women's coping strategies indicated the following. Since the coping strategies reveals a person's behavioral and cognitive effort to solve the problem, the way the person challenges different life issues and manages the needs, skills such as constructive thinking, flexibility in behavior and recognition of capabilities are needed. As a result, the use of ineffective coping methods has been the origin of most psychological disorders, especially depression. Depressed people use more ineffective coping strategies (such as avoidance and emotion-focused strategies) than other people. Therefore, they get involved in a vicious cycle and lose the ability and motivation to face problems. Cognitive behavioral therapy, a set of cognitive and behavioral techniques, aims to improve individuals' ways of dealing with everyday issues. This type of therapy is based on the principle that maladaptive thoughts are the cause of maladaptive behaviors and emotions, helping people to learn a different way of thinking (Radu, 2012). Therefore, it can be effective in coping better with psychological pressure. In the discussion of coping strategies, this therapeutic approach emphasizes the use of problem-focused strategies, because emotion-focused strategies are based on accepting the problem instead of directly fighting to solve it; crying, getting upset, and resorting to unattainable wishes are done instead of planning to solve the problem, and as an alternative to facing the problem, in avoidance strategies the statement of the problem is ignored and eliminated. As a result, they do not do anything to solve the problem. Depressed people also lose their motivation to move forward due to the use of these strategies. Consequently, cognitive behavioral therapy seeks to help people to use less emotion-focused and avoidance

strategies and instead focus on problem-coping strategies.

It can be stated that in the explanation of finding the effect of cognitive behavioral therapy on depressed women's quality of life, the quality of life of depressed people was affected by their negative automatic thoughts, ineffective beliefs, and inappropriate coping strategies. For instance, a person who sees himself/herself to be unable to achieve his/her goals and feels that his/her goals are far from achievement will be completely disappointed; as a result of such a situation, he or she is unmotivated to approach daily tasks. This lack of motivation prevents an individual from the activity and makes him/her further away from reaching his/her goals. This creates a vicious cycle in his/her life, reducing the quality of life. Therefore, understanding of life, values, goals, standards, and interests become limited and they feel less secure, their tolerance for failures and frustrations decreases and they generally lose their motivation to change their living space. Through cognitive behavioral therapy, rational life training, recognize and challenge inefficient thoughts, reconstruct irrational beliefs, help to design a purposeful and flexible life path, identify how negative emotions are formed; confronting and replacing them, planning a daily activity schedule, helping to change ineffective coping strategies as well as replacing appropriate coping strategies, identifying supportive and helpful resources assists them to increase the level of quality of life (Beck, 2020).

The crucial limitation of this research was the impossibility of using the follow-up phase to measure the amount of persistence of the effects of the experimental phase, another limitation is the use of a questionnaire as a data collection method, because individuals may not have enough introspection and may not answer the questionnaire properly. It is suggested that other treatment methods such as metacognition, schema therapy, etc. be used in future research the results of which would be compared with the results of cognitive behavioral therapy.

5. Conclusion

Negative thoughts and beliefs are the main factors for an individual suffering from depression, this group of people continuously engage in strategies to deal with these beliefs that make them more immersed in depression and despair, this behavioral strategy will decrease their quality of life. Cognitive behavioral therapy, using different techniques, helps a person to fight his/her negative thoughts and beliefs and give up ineffective coping strategies, which ultimately increases his/her quality of life.

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Conflict of interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Research Paper: Comparison of Meta-Worrying, Mental Rumination, and Cognitive Distortions in Recovered Patients of COVID-19 and Normal People

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Abstract

COVID-19 has shown a high rate of spread and a high death rate. This disease puts the mental health of people in a different social class at risk. The present study was a comparison of meta-worry, rumination and cognitive distortions in COVID-19 pations recovered and normal individuals. Causal-comparative model was hired in the present study. The population of this study included all COVID19 patients recovered as well as normal people referring to Tonekabon health centers in the period of July and August 2021, of which 120 people were selected according to convenience sampling. The research instruments were meta-worry Questionnaire (MWQ), the ruminative response scale (RRS) and cognitive distortions scale (CDS). To analyze the collected data, a MANOVA was run using SPSS-24 software. Data analysis reveal that there were differences between meta-worry, mental rumination and cognitive distortions in the two groups of people who recovered from COVID-19 and normal people; those who recovered from COVID-19 indicated more meta-worry, mental rumination and cognitive distortions than normal people. It can be said that based on the results of this research indicating the higher level of rumination, cognitive distortion and meta-worry in people recovered from COVID-19, it is possible to reduce these variables by teaching adaptive strategies to recovered people to deal with meta- worry, rumination and cognitive distortion.

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1. Introduction

Coronaviruses are a large family of viruses that can cause respiratory infections ranging from the common cold to more severe diseases such as MERS and SARS. The new type of this virus has recently spread in Wuhan, China, under the name COVID-19 (World Health Organization, 2020). Regions with confirmed COVID-19 cases by the World Health Organization (WHO) include Africa, the Americas, the Eastern Mediterranean, Europe, Southeast Asia, and the Western Pacific (Robbins & Klotz, 2020). In Iran, COVID-19 also spread rapidly and endangered people's both physical and mental health. Symptoms of this virus range from mild to severe ones. Symptoms and signs of infection include fever, cough, and difficulty breathing (Wu &McGoogan, 2020). In the latest statistics from the Worlometers database in 2022, 643,215, 399 people in 288 countries of the world were infected with COVID-19, out of which, 6,626,455 people died (Worlometers, 2020). According to the official statistics of the Ministry of Health, Treatment and Medical Education until July 15, 2020, the number of cases of COVID-19 in Iran reached 264,561 people. This amount of broad spread of COVID-19 and the number of deaths caused by this virus caused the World Health Organization to declare a health emergency and take measures to control the virus and manage it. To contain this virus, the officials and decision-makers of the health and treatment field have to implement measures such as quarantine and isolation of people, closure of recreational centers, businesses, schools, and universities, providing health protocols, setting up hospitals, practicing physical and social distancing, imposing restrictions on traffic, informing people through the media, enforcing the use of masks and disinfectants on a large scale (Lai et al., 2020).

Anxiety is a common symptom in patients with the chronic respiratory disorder and can significantly reduce the patients' quality of life. In almost the majority of cases, the measurement of anxiety includes physical cases, which can overlap with the symptoms of chronic respiratory disease and side effects of drugs (Dong et al., 2017). Clinical anxiety affects up to two-thirds of chronic respiratory patients and reduces the quality of life and physical performance. People become anxious as they hear about the increasing number of people infected with COVID-19, which threatens their security and peace (Shim et al., 2020). Such people constantly worry about their health and constantly check their physical health and vital signs (Stuart et al., 2019); these worries may become meta-worry. Meta-worry is the transformation of normal worry into abnormal worry through negative beliefs and evaluations, which plays an important role in damaging health (Spada et al., 2016).

In other words, a negative evaluation of worry or worry about worry is called meta-worry, which involves catastrophizing worry and is difficult to be controlled mentally (Myhr et al., 2019). This structure causes the intensification and stability of worry and the formation of pathological worry. Although meta-worrying causes an increase in stress, anxiety, and worry, s/he does not try to break the chain of worry, since the person thinks the need to worry is a kind of coping strategy (Esbjorn et al., 2015).

Another psychological problem that can negatively affect the mental health of patients is mental rumination. It seems that mental rumination about the disease and its symptoms and consequences can lead to the creation and persistence of COVID-19 anxiety (Azizi Aram & Basharpour, 2020). According to Martin and Teiser (1996), the concept of rumination refers to a thinking style that tends to repeat itself (Robinson & Alloy, 2003). From their point of view, rumination introduces a set of conscious thoughts that revolve around an important issue and these thoughts emerge even in the absence of immediate and necessary environmental demands. The external environment may lead to maintaining these thoughts by providing signs, but at the same time, maintaining these thoughts and continuing them is not dependent on environmental signs. Moreover, rumination is defined as resistant and recurring thoughts that go around a common topic, enter consciousness through involuntarily and divert attention from the desired topics and current goals (Joormann, 2010). According to the studies, patients of COVID-19 have low psychological tolerance and according to the current situation of the disease in the world, these people are highly exposed to the occurrence of psychological disorders such as anxiety, fear, depression, as well as negative thoughts and cognitive distortions (Yao et al., 2020). A person's important schemas or beliefs are subject to cognitive distortions. Since most schemas begin in childhood, the thought processes that support this schema may reflect childhood mistakes. Cognitive distortions appear when information processing is incorrect or ineffective. In other words, sometimes the analysis of information is distorted in people's minds. These types of distortions, which are called cognitive errors and distortions, appear in various forms. If these distortions occur intermittently and frequently, they can lead to discomfort or psychological disorders such as obsessive-compulsive disorder (Goldin et al., 2009).

Currently, there is no information about the psychological impact and general health of people at the height of the COVID-19 epidemic. This is particularly related to the uncertainty surrounding the spread of this virus, and most of the research related to this spread is focused on identifying the epidemiology and clinical characteristics of infected patients (Huang, 2020). Considering that these kinds of diseases put a lot of pressure on people both physically and psychologically as well as culturally and socially (Shrewsbury, 2005; Shivandi & Hasanvand, 2020). Living in such conditions seriously threatens people's physical and mental health, for the effects of injuries and psychological pressure caused by the crisis of the COVID-19 virus remain on people and may affect the dimensions of mental health, and these psychological dimensions are unknown. There is little scientific and research information about it. On the other hand, the research conducted during this period are more of the survey type estimating the anxiety and depression level of COVID 19 patients, medical staff, and other people, mainly from the Chinese community; they have not explained, recognized and thoroughly understood the experiences of ordinary people in this disease (Greyling et al., 2020).

Research results indicate that people using negative and weak cognitive styles such as rumination, catastrophizing, and self-blame during the COVID-19 pandemic are more vulnerable to emotional problems

than other people. In fact, people who are unable to properly manage their emotions in the face of the stress caused by COVID-19 experience more stress, depression, and anxiety (Bagheri Sheykhangafshe, 2022). In addition, according to the research conducted by Eyni et al. (2021), students' mental health has a significant negative relationship with the anxiety of COVID-19 and cognitive distortion, and a significant positive relationship with psychological toughness.

Therefore, considering the importance of psychological problems of affected people on one hand and the lack of research done in this field on the other hand, it is necessary to pay attention to psychological problems such as anxiety, stress, mental rumination, and cognitive distortions of affected people. To reduce these problems, necessary measures should be taken; it seems to be necessary to conduct research on this issue and in this field. Based on the mentioned ideas, the current research seeks to answer the following question: Is there a difference between meta-worry, mental rumination, and cognitive distortions in those who have recovered from COVID-19 and normal people?

2. Method

The method of this research was cross-sectional causal-comparative.

2.1. Participants

The population of the present study included all the recovered people of COVID-19 and normal people from the city of Tonekabon in the period of July and August 2021. The population consisted of 120 people who were assigned into two groups, 60 people recovered from COVID-19 and 60 normal people who were not infected with COVID-19. First, the group of people who have recovered from COVID-19 were selected through convenience sampling after coordinating with the Islamic Azad University of Tonekabon and obtaining permission from the health centers. The group of normal people were also selected through convenience sampling; they completed the research questionnaires administered. Moreover, the groups were selected in terms of age and gender through homogeneous sampling method. The criteria for entering the research included the recovery from the disease of COVID-19 (group 1), normal people (group 2), age range 20-50, education of at least middle school degree, giving consent to participate in the research; not having specific physical and mental problems and completing the questionnaire; these were among the criteria for inclusion in the research. The research data collection tools were as follows:

2.2. Tools

Meta-Worry Questionnaire (MWQ): After separating the items related to meta-worry from the questionnaire, Wells (2005) placed their worry thoughts in an independent questionnaire called the meta-worry questionnaire. This questionnaire contains 7 items. The scoring of this questionnaire is based on a multi-choice question so that one point is for never, two points for sometimes, three points for often, and four points for always. The minimum score of this questionnaire is 7 and the maximum score is 28. The cut-off point for this questionnaire has not been determined. Cronbach's alpha coefficient of the meta-worry frequency scale was 0.88. In terms of construct validity, this questionnaire can

distinguish people with generalized anxiety disorder criteria from people with somatic symptom disorder and people without anxiety. In the present research, Cronbach's alpha coefficient of the meta-worry was estimated at 0.78.

The Ruminative Response Scale (RRS): Nolen-Hoeksema and Morrow (1991) developed a self-test questionnaire that evaluated four different types of reactions to negative mood. The Response Styles Questionnaire (RSQ) consists of two sub-scales as Rumination response scale (RRS) and distracting responses scales (DRS). This tool has 22 items, and the respondents are asked to rate each one on a scale of never (1), sometimes (2), often (3), and always (4) (Treynor et al., 2003). A score of 22 to 33 indicates low rumination, a score of 33 to 55 specifies moderate rumination, and a score above 55 designates high rumination. Cronbach's alpha coefficient was in the range of 0.88 to 0.92. Various research revealed that the test-retest correlation for the RRS was 0.76 (Luminet, 2004). The predictive validity of RRS was tested in a large number of research. The results of many research showed that RRS can predict the severity of depression in follow-up periods in clinical and non-clinical samples by controlling variables such as the initial level of depression or stressful factors. Additionally, based on research findings, this scale can determine people's vulnerability to depression. In addition, it has been shown that this scale can predict a clinical course of depression (Bagherinejad et al., 2010). In this research, Cronbach's alpha coefficient was estimated at 0.88.

Cognitive Distortions Scale (CDS): The present questionnaire was created by Abdollahzade and Salar (2009) to obtain an easy tool for identifying the cognitive distortions used in daily life. This questionnaire is based on Ellis's cognitive distortions measuring 10 known distortions identified by Albert Ellis. This questionnaire, containing 20 questions, is scored based on the 5 options Likert scale. Each of the questions is assigned a score from 1 to 5 depending on the answer given; option I, completely agree, is scored 1, I agree is scored 2, I have no opinion, score 3, I disagree, score 4, I completely disagree, score 5, and only question number one is scored in reverse from 5 to 1. A score of 1 to 20 indicates poor thinking, 21 to 60 shows average thinking, and a score above 60 indicates very good thinking. (Jafarian & Askari, 2019). In Abdollahzade and Salar's (2009) research, conducted on the Iranian population (151 women and 146 men) to standardize this questionnaire, Cronbach's alpha was 0.80. In this research, the alpha coefficient was estimated at 0.70.

2.3. Data analysis procedure

To analyze the collected data, Levin's test, Mbox test, and multivariate analysis of variance (MANOVA) were used running SPSS-24 software, and the level of significance in the current study was at 0.05.

3. Results

Table 1 shows the results of the demographic survey based on gender and age of the two groups: recovered from COVID-19 and normal people.

Table 1.

Frequency distribution of people in the sample group according to gender and age

variable		Recovered from COVID-19	Normal People
Gender	Female	(62%)37	(57%)34
	Male	(38%)23	(43%)26
Age	The lowest number of age ranges (20-30)	(24%)9	(43%)14
	The largest number of age ranges (31-40)	(38%)26	(38%)26

In Table 2, the descriptive statistics of the research variables are given for two groups recovered from COVID-19 and normal people.

Table 2

Statistical characteristics of the dependent variable components in the two groups of recovered from COVID-19 and normal people

Components	Recovered from COVID-19		Normal People	
	MD	SD	MD	SD
Meta-Worry	16.63	4.254	12.21	3.800
Mental Rumination	48.00	10.801	39.41	8.762
Cognitive Distortions	70.30	8.853	63.35	7.482

According to Table 2, it is clear that there was a significant difference between the average of those who recovered from COVID-19 and the average of normal people in the dependent variables.

The results of Levine's test indicated its non-significance for the variables of cognitive distortions (F=3.642, P=0.059), mental rumination (F=3.748, P=0.055), and Meta-Worry (F=1.106, P=0.295). In other words, the assumption of the equality of variances was violated in any of the components. Therefore, MANOVA can be used to identify significant difference between the variables in these two groups.

Table 3
Statistical data concerning MANOVA to identify significant difference between the two groups

Source		Sum of Squares	Degrees of Freedom	Mean of Squares	F	The significance level	Eta
between-groups	Cognitive Distortions	1449.075	1	1449.075	21.567	.000	.155
	Mental rumination	2210.208	1	2210.208	22.848	.000	.162
	Meta-worry	585.208	1	585.208	35.964	.000	.234
within-groups	Cognitive Distortions	7928.250	118	67.189			
	Mental rumination	11414.583	118	96.734			
	Meta-worry	1920.117	118	16.272			
Total	Cognitive Distortions	545247.000	120				
	Mental rumination	242875.000	120				
	Meta-worry	27475.000	120				

Eta-squared showed that approximately 23% of the variance of the meta-worry variable, 16% of the variance of the mental rumination variable, and 15% of the variance of the cognitive distortions variable were accounted for the group variable.

4. Discussion

The purpose of the present study was to compare meta-worry, mental rumination, and cognitive distortions in two groups of recovered people from COVID-19 and normal people. Based on the findings, there was a difference between meta-worry, mental rumination, and cognitive distortions in two groups of recovered from COVID-19 and normal people. The present study's results are in agreement with the research findings of AmirFakhrai et al. (2020) which showed that the variables of health concern, psychological toughness, and positive meta-excitement predict changes in anxiety of COVID-19 in diabetic patients. Moreover, this substantiates the previous findings in the literature (Eyni et al., 2021); they found that the mental health of students had a significant negative relationship with the anxiety of COVID-19 and cognitive distortion, and a significant positive relationship with psychological toughness. In research on healthcare workers, Lai et al. (2020) reported that most of the participants in the research revealed symptoms of depression, anxiety, insomnia, and confusion and a large number of people experience significant clinical fear and anxiety during the outbreak of an infectious disease. Today, worry and rumination are among the persistent and recurring negative thoughts that cause and continue psychological damage by increasing confusion, increasing negative emotions

and creating negative states to avoid other perceived threats, and disrupting cognitive functions such as problem-solving and interpersonal functioning (Erickson et al., 2020). Research results stated that cognitive distortions were the strongest predictors of depression, obsessive-compulsive disorder, and anxiety disorders. People suffering from these disorders have distortions in their thoughts such as extreme generalization, hasty conclusions, and personalization of things; in these negative thoughts, traces of stable and uncontrollable internal documents can be seen. These distortions cause more defects in a person's adaptation to situations. The results of research showed that there was a relationship between cognitive distortions and irrational beliefs with anxiety and depression disorders (Eidelman et al., 2016).

Considering that the results of the present research indicated that those who recovered from COVID-19 demonstrated more meta-worry than normal people; therefore, it can be said that worry is a natural cognitive phenomenon that all people experience in certain situations of life. A lot of evidence highlighted that normal people also get worried, although the intensity, frequency, and ability to control this phenomenon in normal people are different from people with disorders. Descriptively, worry is dominated by negative thought activity, which is mostly about negative events that a person fears will happen in the future. Worry is a coping response caused by uninvited thoughts and is mainly focused on a range of issues such as physical health, and social or financial concerns. Thought control strategies increase the number of unwanted thoughts and strengthen the belief that worry is uncontrollable, causing failure to control worry. Researches have shown that worry is associated with an increased risk of social disorders, mental as well as occupational disorders, more use of health services, and physical problems in society. Some researches highlighted that worry reduces the body's resistance to infection. In general, many physical and psychological aspects of the human being are affected by worry and this can lead to physical complications (Zemestani et al., 2016). Considering all the evidence, due to the experience of physical hardships and conflicts with health issues, it can be finally stated that in the group of people recovered from COVID-19, the number of unwanted thoughts and the belief related to the uncontrollability of the anxiety related to COVID-19 strengthened; this itself seriously disrupted all aspects of these people’s lives.

In addition, the results indicated that there was a significant difference between the two groups in the variable of mental rumination; This means that those recovered from COVID-19 showed more mental rumination than normal people. According to the findings, it can be said that although a lot of attention has been paid to the measures related to the identification of people infected with the COVID-19 virus, the identification of the mental health needs of people affected by this widespread disease has been neglected. It seems that rumination about the disease and its symptoms and results can lead to the creation and persistence of COVID-19 anxiety. Rumination is defined as persistent and recurring thoughts that revolve around a common topic. These thoughts enter consciousness involuntarily and divert the attention away from the current issues and

goals. Rumination is a way to respond to confusion, which is especially accompanied by the onset, intensity, and maintenance of depression. Researchers believe that people ruminate because they believe that rumination increases their understanding of the situation and helps them to think about problem-solving. The researchers highlighted that in people who have anxiety disorders, a high level of mental rumination is observed. Furthermore, in another research, it was reported that people with anxiety disorders and depression experience more rumination and worry (Azizi Aram & Basharpour, 2020). In rumination, thoughts are repeated without environmental demand and focus on the causes and results of the symptoms, hindering problem-solving and leading to the rise of negative and repetitive thoughts. Rumination is annoying. It interferes with a person's activities and in particular; the people tend to focus repeatedly on stressful symptoms causing stress (Junwen et al., 2013). Finally, it should be added that rumination becomes incompatible with the intensification of negative feelings and the risk of engaging in confrontational behaviors and exposes a person to many anxiety-provoking confrontations, and as a result, causes a type of chronic worry, with a negative impact on a person's well-being.

Besides, the results indicated that there was a significant difference between the two groups in the variable of cognitive distortions. This means that those who recovered from COVID-19 showed more cognitive distortions than normal people. According to the obtained results, it can be said that in the period of COVID-19, people faced physical and psychological problems such as stress, confusion, anger, despair, and other mental injuries in addition to enduring the difficulties caused by home quarantine; the spread of this disease turned into a social crisis that not only involved the body and personal health of people, but also as a social crisis in a complete and broad sense, and even as a super crisis. On the other hand, due to the existence of some human inabilities, in some cases, the effects of crises are overestimated or underestimated, which is called cognitive distortion using a specific cognitive model. Cognitive distortions such as external events that cause discomfort, depression, and interpersonal problems play an important role in the occurrence of many mental disorders. These cognitive distortions lead to the formation of assumptions about oneself and the surrounding world, used in the organization of perception and control and evaluation of behavior. Some assumptions are flexible and make predictions about the future, and in turn, cause behavioral, motivational, cognitive, and physical symptoms resulting in depression, anxiety, and psychological pressure. Cognitive distortions are ways that simply convince our minds of things that are not true, and as false thoughts, they usually reinforce negative thinking that leads to a bad and unpleasant feeling about ourselves (Shivandi Chaliche & Mostafaei, 2021). In the conditions of the spread and epidemic of COVID-19, cognitive distortions in people could lead to the processing of incorrect or ineffective information in the minds of people making the realistic analysis of interpersonal relationships difficult, which leads to psychological damage such as restlessness, anxiety, and disturbed relationships in a person's life.

The current research also had limitations. Considering the fact that the

present research had convenience sampling method, the generalization of the results should be done with caution. It is suggested that the influencing variables on people's psyche be identified in future research with a local perspective and the recognition of personality, cultural and family characteristics.

5. Conclusion

Considering the results of this research, indicating a higher level of rumination, cognitive distortion, and meta-worry in those who have recovered from COVID-19, it is possible to reduce these variables by teaching adaptive strategies to recovered people to deal with meta-worry, rumination, and cognitive distortion. It is also suggested that in the conditions of infectious diseases, such as the COVID-19 virus, which has a high transmission rate, the hiring of mental health experts to teach problem-solving, cognitive reconstruction, and providing those recovered with other psychological treatment techniques, who felt powerless against this disease, can be useful.

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Conflict of Interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Research Paper: Predicting Social Adjustment based on Early Maladaptive Schemas and Social Skills

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Abstract

This research aimed to predict social adjustment based on early maladaptive schemas and social skills. Through convenience sampling, 133 individuals from Tehran's population completed the online questionnaires, including Bell's Adjustment Inventory (BAI), Young's Early Maladaptive Schemas (YEMSQ), and Matson Evaluation of Social Skill with Youngsters (MESSY). To analyze the data, correlation as well as structural equations modeling were used running SPSS-22 and LISREL software. The results indicated that early maladaptive schemas in five domains of disconnection/rejection, impaired autonomy/performance, impaired limits, other-directedness, and over-vigilance/inhibition had a negative relationship with social adjustment, and also social adjustment had a positive relationship with social skills. The findings suggested that social adjustment can be predicted based on early maladaptive schemas and social skills. Among the schemas, the two domains of impaired limits (-0.69) and impaired performance (-0.53) had the strongest negative impact on social adjustment and social skills; however, the second effective factor designated the most positive effect (0.58) on social adjustment, following the domain of impaired limits. The results were explained in the context of the theory of schemas and suggestions were made to promote social adjustment.

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1. Introduction

Social adjustment as the crucial symptom of mental health is one of the topics that has attracted the attention of many sociologists and psychologists in recent decades. The adjustment has been defined as a continuous process in which an individual's social learning experiences provide abilities and skills through which needs can be satisfied (Goleman, et al., 1995). Adjustment is considered to be a general concept that includes all strategies for managing stressful life situations, including realistic and symbolic threats. When a person's physical and mental balance is disturbed in such a way that it causes his/her unpleasantness, s/he needs to use internal forces and external support to create balance. If it succeeds in using new mechanisms and solves the problem in its favor, the adjustment process has been established (Rahimnia & Rasulian, 2006). The dimensions of adjustment include social, emotional, physical, and moral adjustments, in which social adjustment is at the top of all; this adjustment is considered to be a precursor to reaching emotional and moral adjustment (Mazaheri et al., 2007). Usually, personality traits are considered to be normal, which help a person adjust to the world around him/her, that is, to live at peace with others and attain a place for himself/herself (Atkinson et al., 2000/2012). In the formation of social adjustments, factors such as training methods, values , and beliefs governing the individual, society, and family are effective. Social adjustment is influential in the level of occupational success and social development of individuals. Coping with the social milieu can promote health and protect an individual against the negative effects of diseases (Cohen et al., 2004).

Several factors influence social adjustment. For instance, Amani et al. (2012) indicate that there is a relationship between attachment style and social adjustment, and secure attachment style can predict social adjustment. Kagnici (2012) also reveals that emotional stability and social creativity are strong predictors of social adjustment. The positive relationship between social adjustment and social skills has also been indicated by Ceyhan (2006); moreover, Saeediyān and Nili (2011) show that self-assertiveness training has a significant effect on the social adjustment of female heads of households. Therefore, according to the wide range of variables that are related to social adjustment, it seems that social adjustment is a construct that is related to basic psychological factors; in fact, the relationship between social adjustment and a wide range of variables is related to the relationship between social adjustment and that basic factor.

Most of the interpersonal difficulties people experience are influenced by their way of thinking about themselves and others. This way of thinking is called schema. In the context of psychology and psychotherapy, a schema is considered generally to be any organizing principle that is essential to understanding one's life experiences. Many schemas are formed early in life, continue to form, and impose themselves on later life experiences (Beck, 1967). This is sometimes referred to as the need for cognitive consonance, that is, maintaining a stable view of oneself or others, even if that view is inaccurate or distorted. Early maladaptive schemas are deep and pervasive patterns or themes that are made up of memories, emotions, cognitions, and bodily sensations which are formed during childhood or adolescence. These self-destructive, emotional and cognitive patterns are repeated throughout the life course. The early maladaptive schemas are divided into 5 domains; each domain contains several schemas: 1- The domain of disconnection and rejection, including the schemas of abandonment/instability, mistrust/abuse, emotional deprivation,

defectiveness/shame, and social isolation/alienation 2- The domain of impaired autonomy and performance including schemas of dependence/incompetence, vulnerability to harm or illness, undeveloped self/enmeshment, failure 3- The domain of impaired limits, including schemas of entitlement/grandiosity, insufficient self-control/self-discipline 4- The domain of other-directedness including schemas of subjugation, self-sacrifice, approval seeking/recognition seeking 5- The domain of over-vigilance and inhibition which includes schemas of negativity/pessimism, emotional inhibition, unrelenting standards/hyper-criticalness and punitiveness (Young et al., 2006/2022).

In Yoosofnejad Shirvani and Peyvastegar's (2017) research, there is a relationship between life satisfaction and early maladaptive schemas; schemas of emotional deprivation, social isolation, defectiveness/shame, failure, dependence/incompetence, vulnerability to harm or illness, subjugation, self-sacrifice, emotional inhibition, unrelenting standards/hyper-criticalness, and insufficient self-control/self-discipline have a negative relationship with life satisfaction. This finding can be related to the subject of the present research in terms of the positive relationship between social adjustment and life satisfaction. Other studies have demonstrated the relationship between specific types of adjustment and early maladaptive schemas. For instance, Seyfizadeh et al. (2019) highlight that there is a negative and significant relationship between early maladaptive schemas and marital adjustment in men (r=0.31) and women (r=0.53). In the field of adjustment to an institution, Nasirian et al. (2022) suggest that early maladaptive schemas in all domains have a negative and significant relationship with adjustment to an institution.

Social skills are a set of learned behaviors that enable an individual to have an effective relationship with others and avoid unreasonable social reactions (Biabangard, 2006). Social skill is a continuous process during which a person changes his/her behavior to create a sufficient and effective relationship with the environment, other people, and himself/herself. The basis of social skills is to create a balance between one's desires and society's expectations, which can affect all aspects of an individual's life (Dhingra et al., 2005). An individual who has high social skills changes his/her behavior to create an efficient and effective relationship with the environment and other people. Many psychologists believe that the insufficient development of social skills plays a significant role in the frustration and failure of people. Children who have not learned the necessary skills for effective interpersonal functions are aggressive, quick-tempered, and aloof, hated by others, unable to cooperate effectively with others, and severely exposed to physical and mental dangers and expulsion from school. Social skill means that an individual can mutually communicate with others and give positive responses (Rostami & Ahmadnia, 2012). Studies have revealed that individuals who lack social skills and live alone are more prone to the morbidity of infectious diseases under stressful situations; however, individuals who have social skills are less likely to suffer from physical symptoms and health problems (Khodayarifard et al., 2008). Research findings indicate the relationship between social skills and social adjustment, as well as the effect of social skills training on social adjustment. For instance, Hassani et al. (2021) suggests that social skills training is effective in social adjustment and social acceptance of hyperactive children. The researchers specified the obtained finding that social skills training is effective in the evolution of social cognition for hyperactive children, and therefore social

skills training can be used in the clinical interventions of hyperactive children. Another research also indicate that self-compassion training (as a social skill) is effective in increasing social adjustment (Babzadeh et al., 2022). Hemaci et al. (2016) also highlight that through the regression coefficient life skills, self-awareness skills, problem-solving, and interpersonal relationships can positively predict social adjustment.

Based on the mentioned studies, this research was looking for the variables that can explain social adjustment. Previous research has separately stressed the relationship between social adjustment and early maladaptive schemas and the relationship between social adjustment and social skills. Considering all the reviewed literature, this research aims at answering the following question: Is it possible to predict social adjustment based on early maladaptive schemas and social skills?

2. Method

1.2. Population, sample, and sampling method

Considering the population of Tehran in 2020 as the population of the study, 133 people (107 women and 26 men) were chosen through convenience sampling, who responded to the questionnaires.

2.2. Data collection tools

The variables of the study were: social adjustment (criterion variable), social skills, and early maladaptive schemas (predictor variables) measured by Bell's Adjustment Inventory (BAI). Bell's adjustment inventory (1961) measures five separate levels of personal and social adjustment such as home adjustment, health adjustment, social adjustment, emotional adjustment, and occupational adjustment. A high score in this inventory shows an inappropriate adjustment in that field. The reliability of the total and subscales of adjustment at home, health, social, emotional, and occupational was obtained as 0.94, 0.91, 0.81, 0.88, 0.91, and 0.85 respectively (Bell, 1961). In this research, the social adjustment subscale (with 32 items) was used. Scores of 3-6 for men and 5-8 for women high level of social adjustment; scores of 7-15 for men and 9-19 for women indicate an average level of social adjustment, and scores of 16-20 for men and 20-24 for women show a high level of social maladjustment, such individuals tend toward isolation and stay aloof from people. In Mikaeili Mani and Madadi Emamzadeh's (2008) research, the total reliability of this test was 0.84 and its validity was 0.80.

Young Early Maladaptive Schemas Questionnaire (short form) (YEMSQ): This questionnaire was created by Young (2005) with 75 items; it measures 15 early maladaptive schemas in five domains: 1- Emotional deprivation 2- Abandonment/Instability 3- Mistrust/Abuse 4- Social isolation/Alienation 5- Defectiveness/Shame 6- Failure 7- Dependence/Incompetence 8- Vulnerability to harm/illness 9- Undeveloped self/Enmeshment 10- Self-sacrifice 11- Emotional inhibition 12- Unrelenting standards/Hyper-criticalness 13- Entitlement/Grandiosity 14- Insufficient Self-control and Self-discipline 15- Subjugation (Young, 2005). Each item is answered based likert scale (from 1 (completely true) to 6 (completely false)), and a high score in each subscale indicates a maladaptive schema (Rafiee et al., 2011). The first comprehensive research on the psychometric properties of this questionnaire was done by Schimidt et al. (1995) and Cronbach's alpha coefficient was obtained in the non-clinical population from 0.50 to 0.82. Correspondingly, in another research, Cronbach's alpha coefficient for subscales was obtained in

the range of 0.62 to 0.90 and internal consistency was 0.94 (Young, 2005). The standardization of this questionnaire in Iran was done by Ahi et al. (2008) at the University of Tehran, and the internal consistency using Cronbach's alpha was 0.97 in women and 0.98 in men.

Matson Evaluation of Social Skill with Youngsters (MESSY): This questionnaire was created by Matson (1983) and has 56 items and is scored based on the Likert scale. The reliability of this questionnaire was obtained by Shamsi and Amirianzadeh (2017) using Cronbach's alpha coefficient equaled to 0.86. The purpose of this questionnaire is to measure social skills from different dimensions (appropriate social skills, anti-social behaviors, aggression and non-aggressive behaviors, supremacy, high self-confidence, and relationship with peers).

2.3. Method of data collection regard

Since the research was conducted during the Coronavirus pandemic, the questionnaires were distributed electronically through a link send out to WhatsApp messenger in different groups (students of Payame Noor, Applied Science and Technology and Azad Universities' student groups, and several groups related to communication between schools and parents). By providing a brief explanation about the research, an effort was made to encourage the members present in the groups to complete the questionnaire. Questionnaires were prepared without the first and last name; since they provided their responses electronically, the participants granted their consent to participate in the research. The inclusion criteria were consenting to participate in the research, having minimum education of a diploma, and including in the age range of 18 to 45 years. With regard to the electronic nature of the questionnaires, only completed questionnaires were recorded; therefore, no questionnaires were excluded from the analysis due to incompleteness.

2.4. Method of data analysis

This correlational research was done by prediction type, Pearson correlation method and structural equation modeling. Data were analyzed using SPSS-22 and LISREL-8.8 software.

3. Results

34 individuals (25.6%) were single and 99 individuals (74.4%) were married. In terms of age range, 16 (12%), 10 (7.5%), 22 (16.5%), and 85 (64%) participants were placed in the age groups of 18 to 23 years, 24 to 29 years, 30 to 35 years, and 35 years and above respectively. Education levels: 36 (27.1%), 6 (4.5%), 32 (23.3%), 56 (42.1%), and 3 (3%) individuals held diploma, associate's degree, bachelor's degree, master's degree, and doctoral degree respectively.

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Table 1

Descriptive characteristics of research variables

Variable	Subscale	Mean	Standard deviation	Skewness	Kurtosis	Kolmogorov-Smirnov
Early maladaptive schemas	Domain of disconnection and rejection	5.17	0.62	-0.93	0.59	0.765
	Domain of impaired performance	5.40	0.66	-1.39	1.54	0.374
	Domain of impaired limits	4.74	0.80	-0.48	0.11	0.178
	Domain of other-directedness	4.36	0.85	0.04	-0.24	0.532
	Domain of vigilance	3.86	1.07	0.16	-0.61	0.528
Social skills		2.97	0.24	0.32	-0.11	0.298
Social adjustment		1.70	0.20	0.47	0.04	0.539

The descriptive characteristics of the examined variables were listed in Table 1. According to which, the data distribution is symmetrical (the data range is between -2 and +2) and normal (the values for the Kolmogorov-Smirnov test were not significant).

Table 2

*Correlation matrix between research variables**

Variable	Early maladaptive schemas					Social skills	Social adjustment
	Disconnection	Impaired performance	Impaired limits	Other-directedness	Vigilance		
Disconnection	1						
Impaired performance	0.664	1					
Impaired limits	0.622	0.493	1				
Other-directedness	0.478	0.387	0.473	1			
Vigilance	0.372	0.262	0.479	0.576	1		
Social skills	-0.428	-0.504	-0.293	-0.441	-0.334	1	
Social adjustment	-0.415	-0.524	-0.684	-0.424	-0.504	0.568	1

*All correlations are significant at the 0.01 level.

Pearson's correlation test was run to examine the relationship between social adjustment and social skills and early maladaptive schemas. The findings (Table

2) demonstrated an inverse relationship between early maladaptive schemas with social skills and social adjustment and a positive relationship between social adjustment and social skills.

Table 3

Path coefficients of the effect of early maladaptive schemas and social skills on social adjustment

Path	Path coefficient	t-value	Situation
Domain of disconnection and rejection → Social adjustment	-0.43	-4.10	Accepted
Domain of impaired performance → Social adjustment	-0.53	-6.07	Accepted
Domain of impaired limits → Social adjustment	-0.69	-7.76	Accepted
Domain of other-directedness → Social adjustment	-0.45	-4.11	Accepted
Domain of vigilance→ Social adjustment	-0.48	-5.98	Accepted
Social skills → Social adjustment	0.58	8.25	Accepted

Structural equation modeling and LISREL software were used to investigate the effect of social skills and early maladaptive schemas on social adjustment. After adding the constraints of the model and selecting the maximum likelihood method, the model was executed. The path coefficients (Table 3) were significant. The path coefficient of the effect of social skills on social adjustment was positive and the path coefficients of the effect of early maladaptive schemas on social adjustment were negative.

Table 4

A selection of Model Fit Indices

Index	Index name	Abbreviation	Value	Acceptable fit
Absolute Fit Indexes	Coverage area	χ^2 df=14006	33340.31	
	Goodness-of-fit index	*GFI*	0.93	>0.8
Comparative Fit Indexes	Adjusted goodness-of-fit index	*AGFI*	0.90	>0.8
	Comparative Fit Index	*CFI*	0.98	>0.9
Parsimonious Fit Indexes	Root mean square error of approximation	*RMSEA*	0..60	<0.1

The Model Fit Indices (Table 4) demonstrated the statistical adequacy of the model. Based on this, it can be said that early maladaptive schemas (negatively) and social skills (positively) affect social adjustment.

4. Discussion

The findings highlighted that early maladaptive schemas had a negative effect and social skills had a positive effect on social adjustment. Previous research also stressed that social skills had a positive effect on social adjustment (Ceyhan, 2006; Hassani et al., 2021; Babzadeh et al., 2022; Vatankhah, 2016 to name some). It can be said that the higher the social skills a person has acquired, the higher the power of the social adjustment they show. Higher social skills lead to a greater ability to communicate with others and they can ultimately meet their needs; hence higher social skills are associated with better social adjustment.

The findings of this research showed that all five domains of schemas had an inverse effect on social adjustment. In this context, Seyfizadeh et al. (2019) as well as Nasirian et al. (2022) also revealed that early maladaptive schemas hurt social adjustment. Among the schemas, the two domains of impaired limits and the impaired performance had the strongest effect on social adjustment (inversely). Examining the characteristics of people with early maladaptive schemas can be helpful in understanding the inverse relationship between early maladaptive schemas and social adjustment. By enumerating the main characteristics of these domains in an order according to which they illustrated the effects on social adjustment in the current research, we tried to explain why that domain affects social adjustment.

- The domain of impaired limits includes defects in internal limitations, a sense of responsibility towards others, or orientation towards long-term life goals. These schemas lead to problems related to respecting the rights of others, cooperation with others, commitment or goal setting, and achieving realistic goals. The schemas of this domain usually arise in families that their characteristic feature is extreme carelessness, confusion, or a sense of superiority instead of discipline, appropriate exposure, reasonable limits, responsibility, cooperation, and goal-setting. In some cases, the child may not be able to tolerate natural discomfort or may not receive adequate guidance, direction, and leading (Young et al., 2006/2022). Based on the description of this schema, it is expected that a person with this schema, not feeling responsible toward others, does not have cooperation, has a low tolerance threshold for discomfort as well as frustration, has problems respecting the rights of others, has low social adjustment in social situations and relationships with others. For instance, among the schemas of this domain, entitlement and grandiosity express that a person stands himself/herself head and shoulders above the rest and gives prerogative to himself/herself, which distances him/her from observing the principles of mutual relations in social interactions, and these matters affect social adjustment.

- The domain of impaired autonomy and performance; an individual’s expectations of himself/herself and his/her environment interfere with him/her perceived abilities to separate, survive, function independently or accomplish tasks. Schemas of this domain usually arise in families that reduce the child's self-confidence, trap the child, overprotect the child, or fail to encourage the child to do activities outside the family (Young et al., 2006/2022). According to this description, a person with the schemas of this domain cannot adjust properly in social situations due to low self-confidence and inability to perform his/her social duties. One of the schemas of this domain is dependence and incompetence which can well explain the relationship between this domain and social maladjustment; a person who feels incompetency and dependency cannot have mature social adjustment.

- The domain of over-vigilance and inhibition; this includes a hyper-emphasis

on suppressing emotions, impulses, and spontaneous choices or fulfilling inflexible and internalized rules and expectations about moral performance and behavior that often leads to the loss of happiness, expression of opinion, peace of mind, close relationships and health. The schemas of this domain usually arise in families where anger, expectation, and sometimes punishment are observed. In these families, excellent performance, perfectionism, conscientiousness, rule-following, hiding emotions, and avoiding mistakes are emphasized. At the same time, pleasure, happiness, and peace are not given much importance. There is usually an underlying tendency towards pessimism and anxiety in such people, so if people can't be vigilant all the time, everything falls apart (Young et al., 2006/2022). Since the efficiency of the emotional and affective dimensions is important in social relationships and social adjustment, a person who has too much inhibition in expressing and accepting emotions cannot demonstrate appropriate adjustment in social situations. Negativity and pessimism, punitiveness, unrelenting standards and hyper-criticalness, and emotional inhibition are schemas related to this domain, all of which can lead to low social adjustment, especially maladjustment in interpersonal relationships.

- The domain of other-directedness; in this domain hyper-focus on the desires, feelings, and responses of others, such that one's own needs are neglected. This is done to receive love and acceptance, to maintain relationships with others, or to avoid revenge and retaliation. In these schemas, a person usually suppresses his/her emotions and natural tendencies and is unaware of them. The Schemas of this domain usually arise in families that accept the child conditionally; the child must ignore important aspects of his/her personality to gain the attention, love, and acceptance of others. In many of these families, parents' emotional needs and desires and social status are valued more than the child's needs and feelings (Young et al., 2006/2022). From the schemas of this domain, we can point out the schema of subjugation, self-sacrifice, approval seeking, and recognition seeking, in all of which a person cannot have a proper adjustment due to neglecting himself/herself and preferring the needs and satisfaction of others. For instance, the subjugation schema can cause anger that affects an individual's social adjustment in the form of passive-aggressive behaviors and uncontrolled emotional outbursts.

- The domain of disconnection and rejection; there is no expectation that one's needs for security, empathy, respect, etc. will be satisfied predictably. Schemas in this domain usually arise in families that are heartless, standoffish, bad-mannered, aloof, quick-tempered, unpredictable, or abusive (Young et al., 2006/2022). Social isolation/alienation as well as defectiveness and shame, which are the two schemas of this domain reduce social adjustment by reducing the quality and quantity of an individual's communications. Other schemas in this domain, such as mistrust/abuse, can lead to maladjustment in social relationships based on the belief that others are deceitful and profiteers.

5. Conclusion

Due to conducting the research during the Coronavirus pandemic, it was not possible to take more samples from a specific population (for instance, students) or use a random sampling method. Considering the importance of social adjustment in today's Iranian society, it is suggested that the relationship between other psychological variables and social adjustment should be investigated in future research from the set of findings in this field, planned to improve social adjustment. Similarly, researching more homogeneous groups, such as university and school students, can provide more specific results for setting up

intervention programs. Conducting research in different ethnic-cultural groups can also determine the effect of cultural factors.

In conclusion, it can be said that the early maladaptive schemas affect social adjustment considering that they are relatively stable patterns of cognitive and intellectual ones. Therefore, their effect on social adjustment is long-term. On the other hand, another finding of the research indicated the effect of social skills on social adjustment. Considering that social skills training is a simpler process than changing schemas, this path is probably more optimal for increasing social adjustment. The path coefficient of the effect of social skills on social adjustment, after the path coefficient of the domain of impaired limits on social adjustment, was also higher than the other path coefficients. Therefore, this finding can be taken into consideration in planning to improve the social adjustment of youth and teenagers.

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Conflict of interest

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